The Journal
OF THE KANSAS MEDICAL SOCIETY

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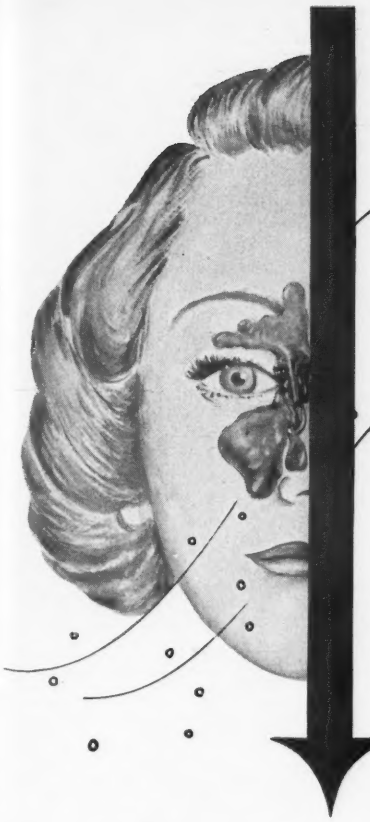

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1. Van Alyea, O. E., and Donnelly, Allen: *Arch. Otolaryng.*, 49:234, Feb., 1949.

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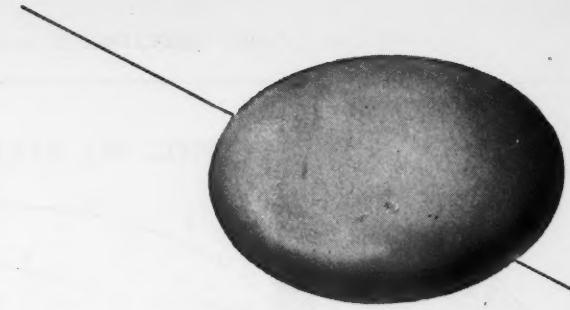

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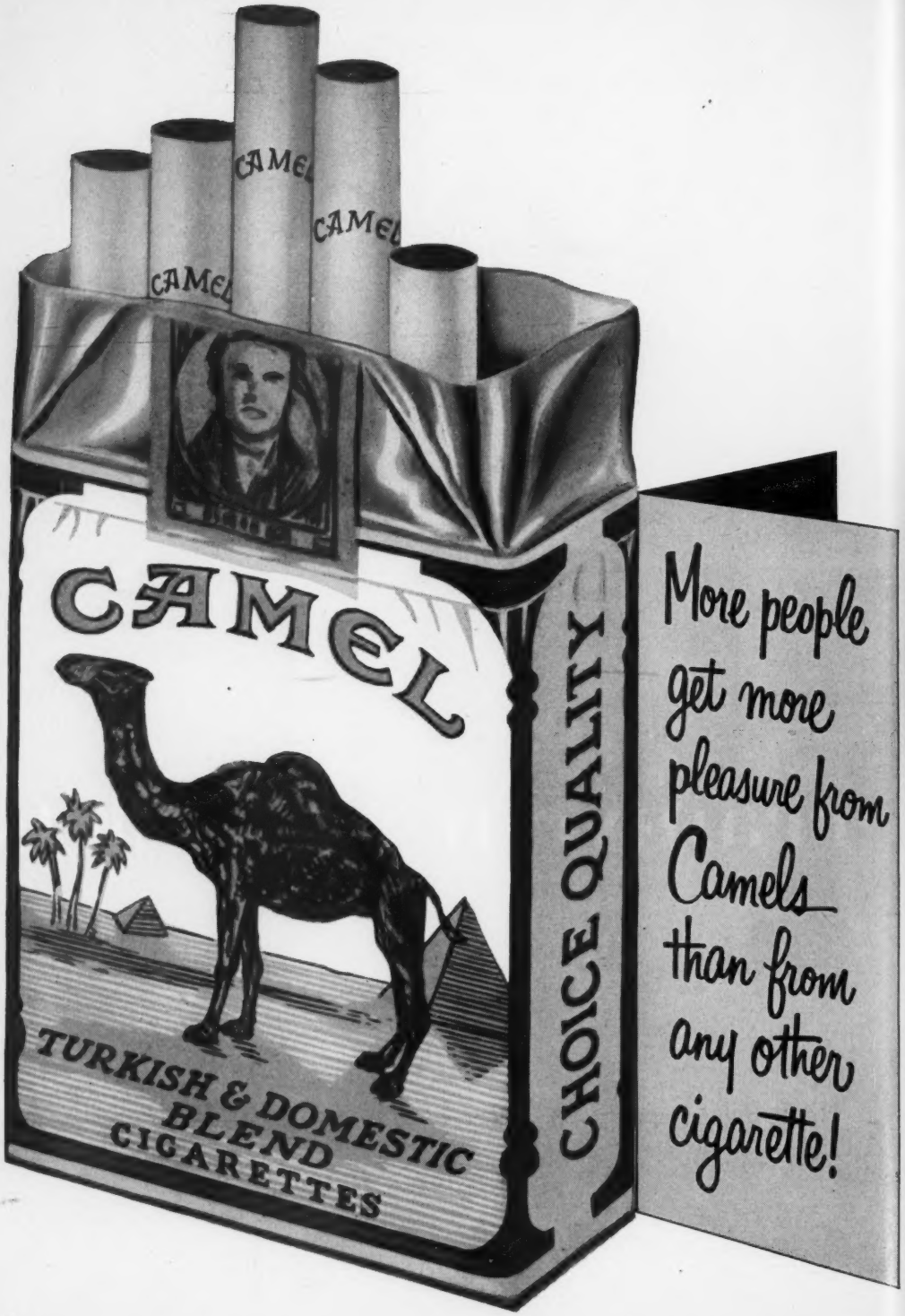
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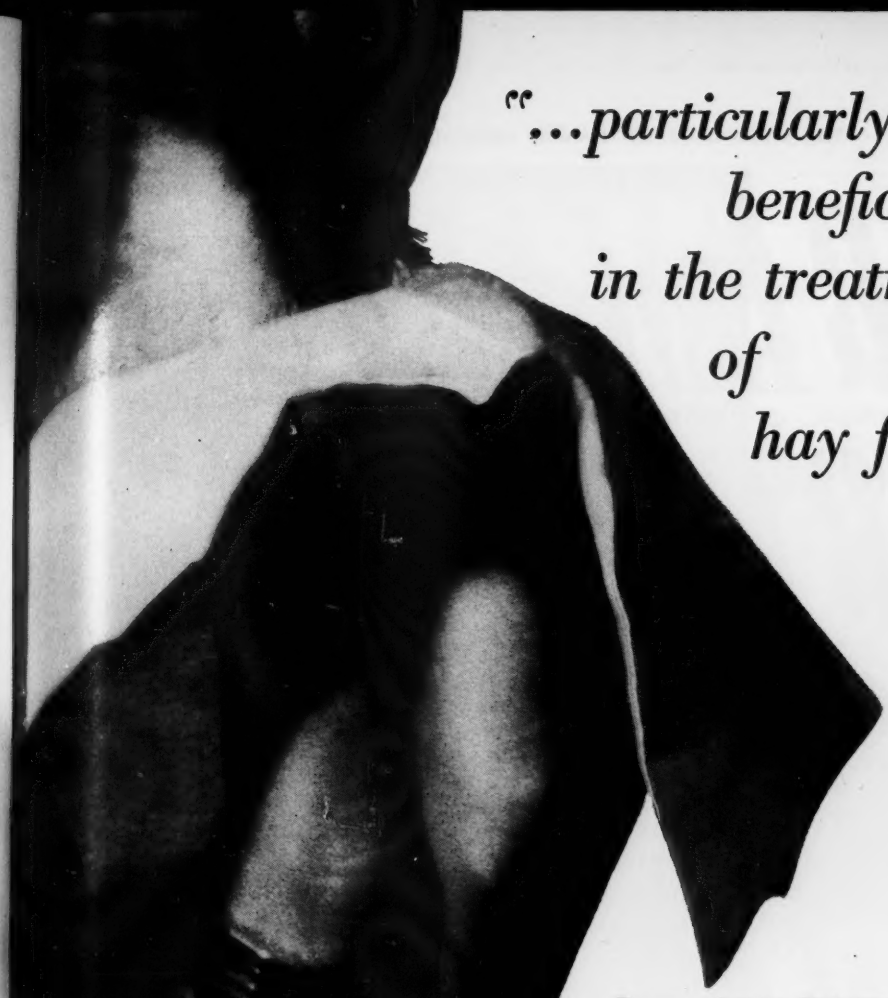

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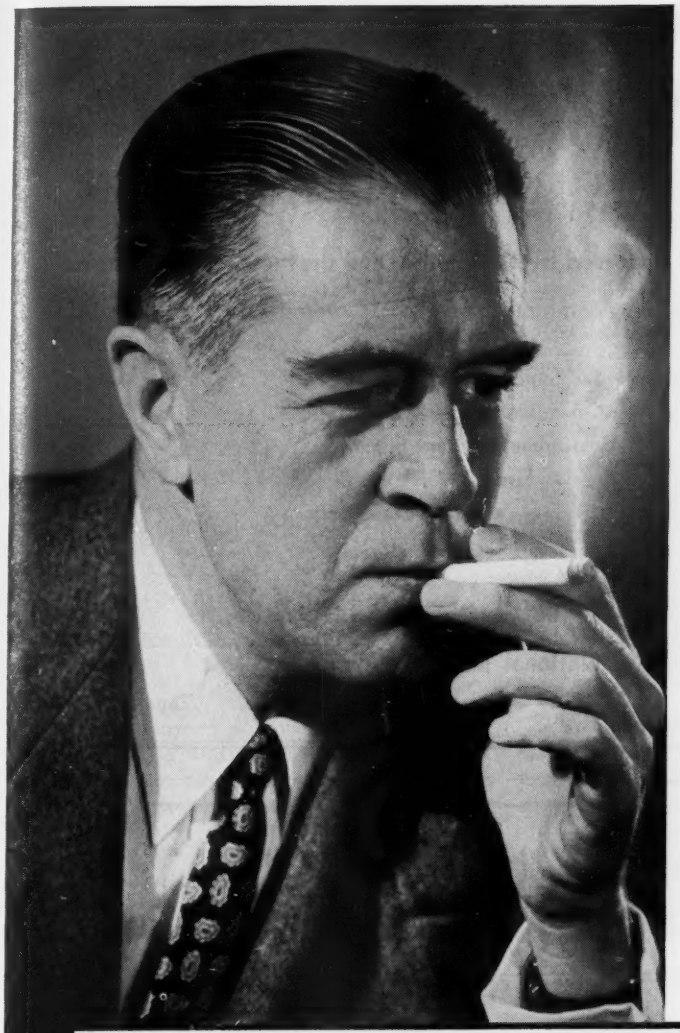

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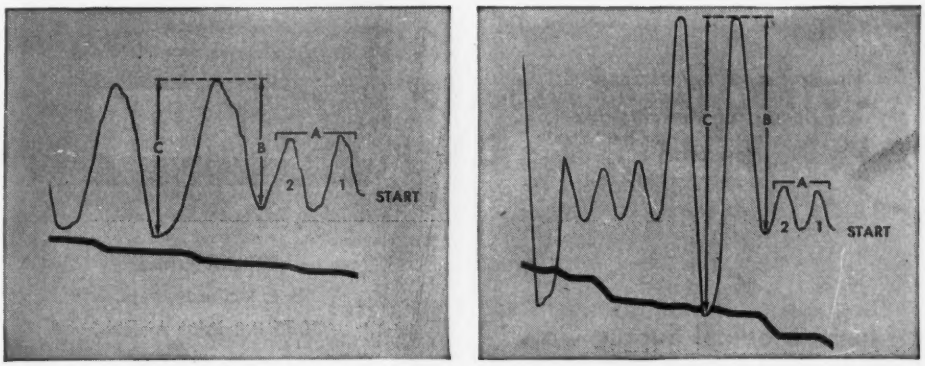

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Schwartz, E., *J.A.M.A.* **147**: 1734–1737. Dec. 29, 1951.

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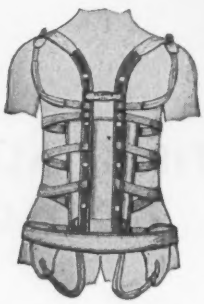

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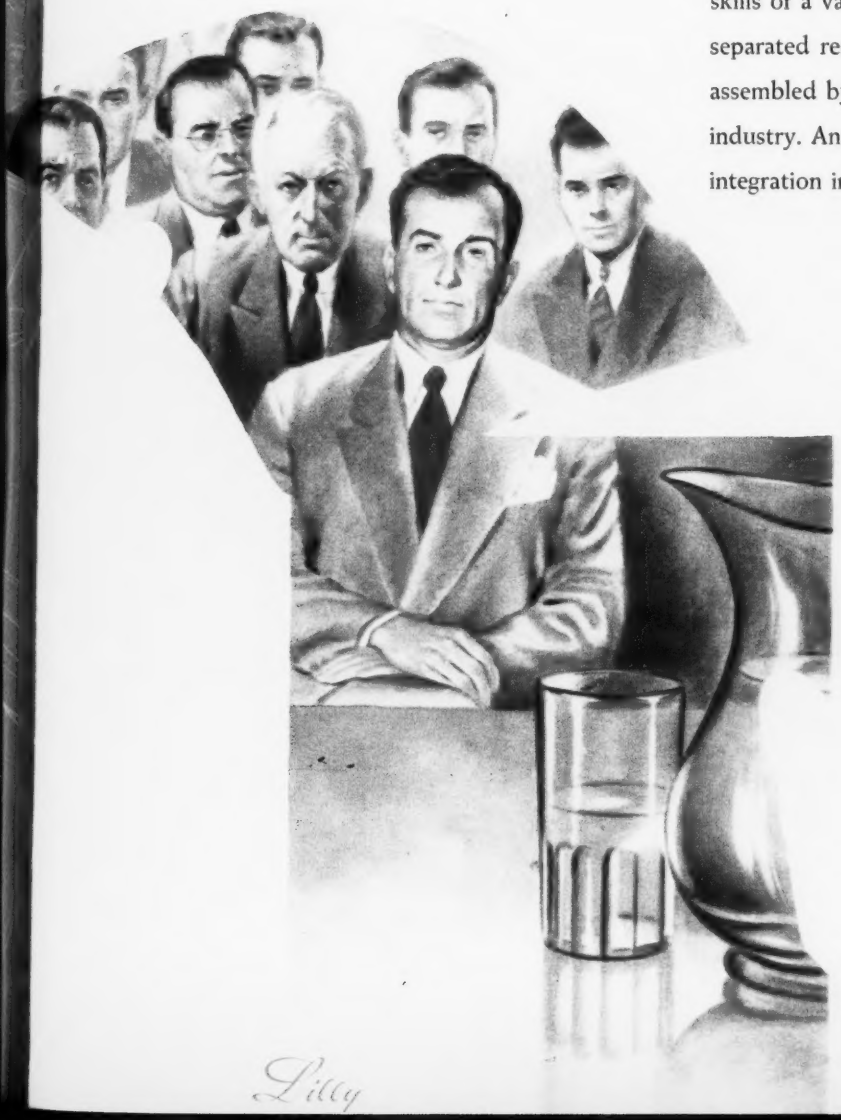

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The Low Transverse Incision for Pelvic Operations

Melvin A. Rabe, M.D.
Leavenworth, Kansas

Although the classical method of opening the abdomen has been by means of a vertical incision, transverse abdominal incisions have been used intermittently since shortly before the turn of the century. This type of incision has become gradually more popular as the fundamental principles of abdominal stress have become better understood.

Historical Aspects

The first use of the transverse abdominal incision is difficult to accurately determine, but the following were some of the pioneers in its development.

The Germans, Pfannenstiel[1] in 1908, Sprengel[2] in 1910, and Bakes[3] in 1911 advocated various transverse incisions. Maylard[4] of Great Britain in 1907 and Moschowitz[5] of the United States in 1916 recommended this type of incision, and the late Fraser Gurd[6] of Canada has been one of its most enthusiastic proponents since he first used it in World War I to join entrance and exit wounds in soldiers suffering from gunshot wounds of the abdomen. In the last quarter century Bartlett and Bartlett,[7] Singleton,[8] Sloan,[9] Sanders,[10] and others have made important contributions toward popularizing this incision. More recently Cherney[11] has described a transverse supra-symphyseal incision for pelvic operations and Tollefson,[12] Johnson,[13] and Pettit[14] have endorsed a transverse incision for gynecological cases. At the present time many of the better surgeons in this country use this type of incision in preference to the vertical one for most operations. These include Wangensteen* of the University of Minnesota and Coller at the University of Michigan.

Anatomical Principles

The reluctance of earlier surgeons to make transverse incisions was probably dependent in part, at least, to their fear of sectioning the rectus muscle across its fibers, feeling as they did that this structure was important in the support of the anterior abdominal wall. They apparently were unconcerned with or unaware of the fact that when they made vertical incisions through the sheath of the rectus they were cutting transversely across the tendinous insertions of the oblique muscles which are actually much more important in furnishing the support of the abdominal wall than is the rectus. These muscles are the ones that are subject to stress when any effort involving intra-abdominal pressures is involved, such as sneezing, coughing, vomiting, etc.

Actually, the part the rectus muscle plays in the support of anterior abdominal wall has been highly over-rated in the past and is probably quite negligible. Its main function seems to be to aid in bending, whereas the support of the anterior abdominal wall is more properly the function of the oblique muscles and their aponeuroses. Its section, moreover, does not impair it appreciably since it is adherent to its anterior sheath at several points by the linea transversae. Transverse incisions tend to split the fibers of the oblique muscles and their tendons rather than transect them so that abdominal stress following this type of incision tends to pull the wound together rather than separate it. The nerve supply to the abdominal wall runs in a generally transverse direction and can usually be preserved with a transverse incision. Transverse incisions do however cut across the blood supply of the rectus muscle, and although this may be a source of annoyance to the surgeon, it is of no other importance.

Advantages and Disadvantages of the Transverse Incision

Despite the fact that the vertical incision has been successfully used since the beginning of abdominal surgery, the transverse incision possesses advantages peculiar to it which may be inferred from the foregoing resume of its anatomical principles.

The transverse incision has been shown to be less subject to dehiscence and incisional hernia; it has

*It has come to the attention of the author, since the preparation of this article, that Wangensteen is now advocating a vertical midline incision with an extrapleural sternotomy for upper abdominal operations.

given less postoperative discomfort and its skin incision, being generally in the lines of skin cleavage, is much neater and more sightly. Its disadvantages are the increased time necessary for its fashioning and the fact that at times it does not offer as good exposure as a vertical wound. This latter objection does not apply to the low abdominal transverse incision.

The Transverse Approach to the Pelvis

Although the transverse incision has become increasingly popular, its use in pelvic operations does not seem to be so widespread in spite of the fact that here it is free of the disadvantages sometimes present when used elsewhere. Many general surgeons who use the transverse incision in the upper abdomen prefer the vertical approach in the lower abdomen, as do most gynecologists. Their reasons undoubtedly include the following: 1. it is easy and quick to make and close; 2. it offers satisfactory exposure, especially when used with a self-retaining retractor; 3. dehiscence of lower abdominal incisions occurs less frequently than those of the upper abdomen; 4. it has stood the test of time.

Nevertheless, the transverse incision when applied to surgery of the pelvis has unique advantages. The exposure obtained from this approach is superlative and can be maintained without the use of retractors. The incision across the rectus is near its tendinous insertion and is practically avascular. The patient's postoperative course is remarkably pain-free, which we attribute in part to the fact that he has not been subjected to the trauma of retractors. The skin incision, being in the line of skin cleavage and near the pubic hair line, is practically invisible. This latter point may seem unimportant but many patients, especially women, feel rightly or wrongly that the type of scar reflects to some degree the skill of the surgeon. Certainly a neat, linear and inconspicuous scar offers both the patient and the surgeon some pardonable pride in his acomplishment.

Technic

This incision should not be confused with the Pfannenstiel incision which is quite similar except for one cardinal difference. The Pfannenstiel incision does not transect the rectus and thereby loses the prime objective inherent in any satisfactory incision, that of adequate exposure. The incision we use is essentially the same as that described by Cherney, and differs in only one rather unimportant respect. The Cherney incision entails suture of the sectioned rectus back to its tendinous insertion in closing the wound. This procedure we have found to be a rather difficult and, we believe, unnecessary step.

A curving transverse skin incision is made through the upper pubic hair line about two finger-breadths above the pubic bones extending a varying distance laterally towards the anterior superior iliac spines. The outer limits of the wound may be four finger-breadths from the anterior spine for such operations as hysterectomy or retropubic prostatectomy and may extend to the spines for such procedures as anterior resection of the colon or abdomino-perineal resection. The anterior sheath of the rectus is then sectioned and the oblique muscles split laterally. The rectus is picked up by inserting a finger beneath it. This muscle together with the pyramidalis, if present, is sectioned at the same level. Practically no bleeding is encountered from the rectus and no clamping is usually necessary. The recurrent epigastric vessels are fairly well lateral and are usually not disturbed except for such operations as abdomino-perineal resection where it may be necessary to ligate them bilaterally. As soon as the rectus is cut it retracts sharply, pulling the anterior sheath superiorly and leaving a gaping wound which requires no retraction. If the operation is to be extraperitoneal, such as retropubic prostatectomy, the transversalis fascia is opened and the peritoneum reflected. For transperitoneal procedures the transversalis fascia and peritoneum are opened together, initially, at the lateral or superior aspect of the wound to avoid the bladder. The peritoneal incision then skirts the superior aspect of the bladder.

In abdomino-perineal resection, the colostomy may be conveniently implanted in the lateral angle of the wound. The wound is closed with a running 0 chromic suture in the peritoneum and interrupted 000 multistrand or 34 monofilament stainless steel wire in the anterior sheath and oblique muscles. The external and internal oblique muscles are usually closed in a single layer. The rectus muscle is not sutured. The skin is closed with a continuous, vertical mattress suture which is removed in five days to obviate stitch marks.

The closure of the anterior sheath often offers

Figure 1. Low transverse incision showing gaping of the wound following transection of the rectus muscles.

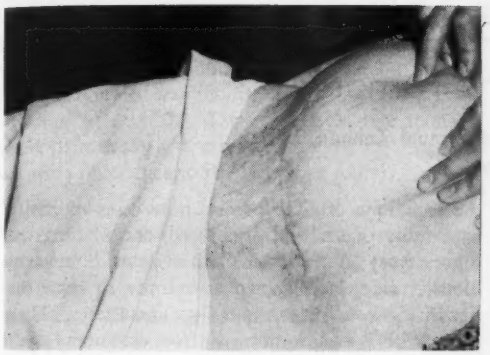

Figure 2. Scar of transverse incision for panhysterectomy made beneath the fatty apron of an obese patient.

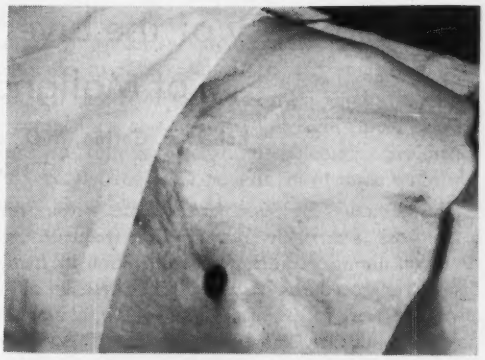

Figure 3. Colostomy implanted in the lateral angle of low transverse incision for abdomino-perineal resection.

some difficulty because of the tension exerted by the retracted rectus muscle. This can be mitigated by breaking the operating table so that the patient lies in a somewhat "jackknifed" position. The extra time consumed in the closure of this wound is more than compensated for by the expeditious accomplishment of the remainder of the operation because of the better exposure. Retropubic prostatectomy and ureterolithotomy have been satisfactorily performed extraperitoneally and anterior resection of the colon, abdomino-perineal resection and panhysterectomy transperitoneally through this incision. The operation of panhysterectomy has especially been facilitated for us by this approach. We have had no dehiscence or incisional hernias and our only complications have been painful wire sutures which required removal in two patients.

Summary

The historical background, anatomical principles and advantages of transverse incisions have been briefly reviewed and the technic of the low transverse approach to the pelvis has been described. This latter incision has not attained the popularity of transverse incisions in the upper abdomen but its wider employment is advocated since it offers an unexcelled exposure of the pelvic viscera which cannot be gained as easily by any other approach.

Bibliography

1. Pfannenstiel, J.: Abdominal and vaginal celiotomy. Tr. Am. Gynec. Soc., Phila., 33:76, 1908.
2. Sprengel, B.: Kritische Betrachtungen über Baudeckennaht und Bauchschnitt (Critical observations concerning suture of the abdominal walls and abdominal incision) Arch. f. klin. Chir., 92:537, 1910.
3. Bakes, J.: Erfahrungen mit den Sprengel'schen Bauchquerschnitten und ein neuer platischer Querschnitt auf die Niere (Experiences with Sprengel's abdominal transverse incisions and a new plastic transverse incision over the kidney) Arch. f. klin. Chir., 96:05, 1911.
4. Maylard, A. E.: Direction of abdominal incisions. Brit. Med. Jour., 2:895, 1907.
5. Moschowitz, A. V.: Transverse incisions in upper abdomen. Ann. Surg. 64:268, 1916.
6. Gurd, Fraser: Anatomical principles involved in abdominal incisions. The Surgical Clinic of North America, 71-284, April, 1945.
Gurd, Fraser: Abdominal incisions, surgical treatment. Bancroft & Wade. J. P. Lippincott Co., 1947.
7. Bartlett, W., and Bartlett, W., Jr.: The transverse incision in the upper abdomen. Surg., Gyn., and Obst., 57:93, 1933.
8. Singleton, A. O.: Improvement in the management of upper abdominal operations, stressing the advantages of an anatomical incision. South. Med. J., 24:201, 1931.
9. Sloan, E. P.: New upper abdominal incisions. Surg., Gyn., and Obst., 45:678, 1927.
10. Sanders, R. L.: Transverse incision in the upper abdomen. Annals of Surgery, 104:74, 1936.
11. Cherney, L. S.: A modified transverse incision for low abdominal operation. Surg., Gyn., and Obst., 72:92, 1941.
12. Tollefson, D. G.: Transverse abdominal incisions in obstetrics and gynecology. West. Jour. Surg., Obst., and Gyn., 58:308, 1950.
13. Johnson, C. Gordon: Low transverse abdominal incision in gynecological surgery. Bull. Tulane Univ. Med. Fac., 10:107, 1951.
14. Pettit, V. A.: Method of wound closure in transverse abdominal incisions. Trans. Pac. Coast Soc. of Obst. and Gyn., 13:107, 1943.

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Needle Biopsy of the Liver as an Aid in the Diagnosis of Malignant Tumors*

Robert T. Cotton, M.D., and Samuel Zelman, M.D.**

Topeka, Kansas

The detection of malignant disease within the body often is difficult and, only too frequently, is time consuming, requiring the utilization of many diagnostic procedures. Although the physician must always be alert to the recognition of the malignant process in its early and potentially curable stage, it would seem equally good medical practice to spare the patient with widespread, incurable cancer the discomfiture of unnecessary surgery, or even the numerous investigations often employed in establishing a diagnosis.

A recent paper[1] calls attention to the potential helpfulness of sternal marrow biopsy in demonstrating the presence of metastatic tumors. In our hands, needle biopsy of the liver has similarly proven a valuable aid in the confirmation of a clinical impression of disseminated malignant disease and in the establishment of an unequivocal diagnosis of metastatic malignancy in more complex cases in which the nature of the illness was far from obvious. Occasionally, the type and the probable primary site of the tumor have been indicated. When the liver was grossly nodular, an attempt was always made to biopsy a nodule, but otherwise a random specimen was depended upon.

During the four years in which we have employed the technique of liver biopsy, nine cases of malignant tumor have been discovered, one of these being primary in the liver. Six cases with negative biopsies were later shown at autopsy to have malignant disease, but without liver metastases. Three cases with biopsies negative for carcinoma were later shown at autopsy to have widespread malignancy with liver involvement. Of these three cases, one had cirrhosis of the liver, diagnosed by biopsy, but showed, in addition, multiple foci of primary carcinoma of the liver. Another had carcinoma of the pancreas with local extension and peritoneal carcinosis, portal space invasion and small tumor nodules in the liver capsule. The third, a case of abdominal carcinomatosis of undetermined primary site, showed no gross tumor nodules in the liver, but exhibited dense neoplastic tissue about the portal vein and invading the portal spaces.

It is obvious that needle biopsy must almost surely fail to demonstrate sparsely scattered metastases. Nevertheless, in a liver grossly enlarged by tumor, the chance for success is reasonably good. We have also been impressed with the relative painlessness and benignity of the procedure, having encountered no serious complications in a total of over 400 biopsies performed for various indications.

The nine cases in which malignant tumors in the liver were revealed by liver biopsy are detailed in order to illustrate the range of usefulness of the procedure.

Case 1. A 54-year-old white male had noted mild epigastric distress and progressive weakness for six months and a sensation of abdominal pressure for two weeks. He was slightly under-nourished and exhibited a large, hard, epigastric mass shown by

*Presented at the Kansas Regional Meeting, American College of Physicians, Emporia, March 21, 1952.

**From the Medical Service, Winter Veterans Administration Hospital, Topeka.

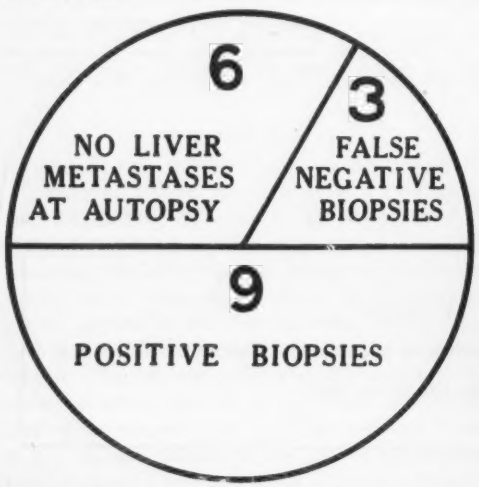

Figure 1. Results of needle biopsy of the liver in 18 cases of proven malignant disease.

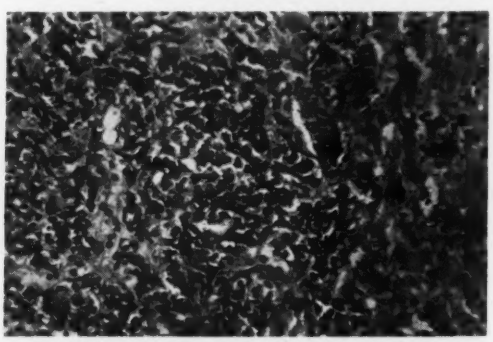

Figure 2, Case 1. Metastatic carcinoma. Primary in bronchus. Normal liver on right. Tumor nodule on left.

x-ray to be the left lobe of the liver. The sedimentation rate was elevated. X-ray of the chest revealed a tumor in the right hilar area. Needle biopsy of the liver revealed carcinoma of undetermined primary site (Figure 2). Death occurred one month later and, at autopsy, a carcinoma of the right bronchus with metastasis to the liver was found.

Comment: Needle biopsy did not indicate the primary site of the tumor but, by establishing the diagnosis, obviated further discomforting diagnostic procedures.

Case 2. A 47-year-old white male had noted pain in the right chest and fatigability for four months and productive cough and slight hemoptysis for two weeks. He had received penicillin therapy for "pneumonia" with slight benefit. Findings included a temperature of 100° F. and a few medium rales at the apex of the right lung. A blood count showed 10,300 leukocytes per cu. mm. with 72 per cent granulocytes. The sedimentation rate was 38 mm. per hour. X-ray revealed an infiltration in the upper lobe of the right lung. The cough and fever subsided with additional penicillin, but serial x-ray films showed a steady progression of the pulmonary infiltration.

During his second week in the hospital the patient developed pain radiating from the left buttock into the thigh. This was associated with loss of the left knee jerk. Spinal fluid examination showed an increase in protein to 106 mg. per cent. Shortly thereafter, the liver and spleen became grossly enlarged. Needle biopsy of a palpable node on the surface of the liver revealed metastatic carcinoma (Figure 3). The patient failed rapidly and expired,

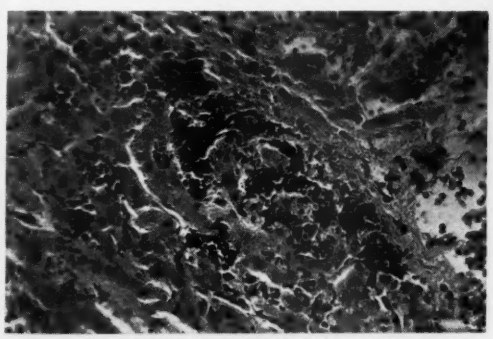

Figure 3, Case 2. Metastatic oat cell carcinoma of bronchus.

with purpura as the terminal event. Autopsy showed primary carcinoma of the right upper lobe bronchus with compression of the superior vena cava, hemorrhage into the peritoneal cavity and metastases to the liver, lymph nodes, spleen, left suprarenal, thoracic spine, dura and spinal canal.

Comment: Needle biopsy of a palpable liver nodule established a diagnosis of metastatic carcinoma, thus adding support to the clinical impression of primary carcinoma of bronchus with metastases to abdominal viscera and spine.

Case 3. A 54-year-old white male physical therapist complained of epigastric and right upper quadrant pain, fullness after meals, anorexia, weakness and a weight loss of 15 pounds, all of three months' duration, and bloating and eructation of one month's duration. He had been hospitalized 1½ years previously for treatment of "biliary dyskinesia." Physical examination revealed a hard 2.5 x 1.0 cm. lymph node in the left supraclavicular fossa and a large, hard, nodular liver extending into the epigastrium. A urine specimen contained 10-12 leukocytes, 3-4 hyalin and granular casts and 55-60 erythrocytes per high power field. The prothrombin time was 83 per cent of normal. Serum proteins were 6.0 gm. per cent, with 3.4 gm. per cent albumin and 2.6 gm. per cent globulin. The one minute direct reacting serum bilirubin was 4.3 mg. per cent and the indirect fraction was 6.2 mg. per cent. Gall bladder x-rays showed no visualization with dye. A gastrointestinal x-ray series revealed a tumor involving the distal third of the stomach. Needle biopsy of the liver showed anaplastic adenocarcinoma (Figure 4),

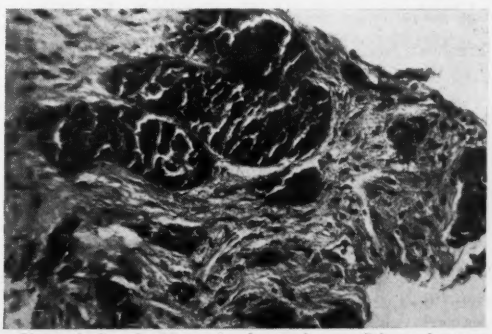

Figure 4, Case 3. Metastatic adenocarcinoma. Primary in stomach. Clusters of tumor cells surrounded by fibrous tissue.

and lymph node biopsy showed metastatic carcinoma of undetermined primary site.

A diagnosis of gastric carcinoma with metastases to liver and lymph nodes was made. Palliative gastroenterostomy was performed. Postoperatively, the patient developed biliary tract obstruction, was unable to retain nourishment and failed rapidly. Preterminally he had a number of left-sided Jacksonian seizures. Autopsy revealed carcinoma of the stomach with metastases to the liver, lymph nodes, suprarenals, left kidney pelvis and brain.

Comment: The needle biopsy of the liver supplemented the lymph node biopsy in revealing the presence of an inoperable tumor. Unfortunately, palliative surgery was necessary.

Case 4. A 44-year-old white male mechanic complained of indigestion, variable appetite with oc-

casional vomiting, dull pain and fullness in the epigastrium, pruritus, dark urine, progressive weakness and the recent discovery of a hard knot in the upper abdomen. His earliest symptom dated back two months. Examination revealed slight icterus, a palpable spleen and hepatomegaly, with a stony hard, nodular epigastric mass which could not be separated from the liver. The sedimentation rate was 38 mm. per hour. Laboratory studies showed marked impairment of liver function. Needle biopsy of the epigastric mass was diagnosed as metastatic carcinoma (Figure 5). The patient steadily deteriorated, with progressive icterus and wasting, and died in coma. Autopsy showed primary carcinoma of the liver with obstruction of the common bile duct by carcinomatous lymph nodes.

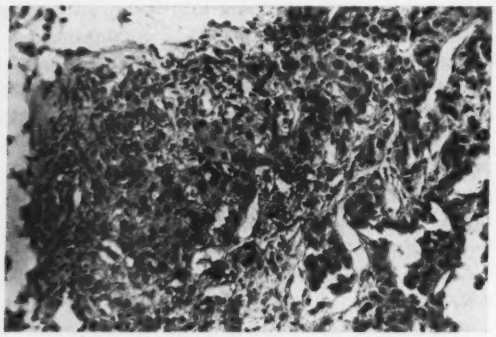

Figure 5, Case 4. Edge of primary carcinoma of liver. Nuclei are larger and darker than those in the adjoining liver tissue on the left.

Comment: A malignant process involving the liver was suspected clinically, but needle biopsy established the diagnosis and perhaps avoided unnecessary surgery. Also, it eliminated the need for further diagnostic procedures.

Case 5. A 51-year-old white male carpenter complained of intermittent pain in the right upper chest, right shoulder and arm, numbness and tingling of the fingers of the right hand, progressive generalized weakness and a 20-pound weight loss, all of four months' duration. He exhibited general asthenia, a right-sided inspiratory lag, coarse rales at both lung bases, weakness and diffuse sensory loss in the right arm, a markedly enlarged nodular liver, dilatation of abdominal parietal veins, with filling in an upward direction, shotty axillary lymph nodes and a large, solitary right supraclavicular lymph node. The sedimentation rate was 30 mm. per hour. X-ray showed enlarged right hilar lymph nodes. The serum alkaline phosphatase was 12.6 Bodansky units. Both biopsy of the supraclavicular lymph node and needle biopsy of the liver (Figure 6) revealed metastatic adenocarcinoma of the anaplastic type seen in "oat cell" carcinoma of bronchus. A diagnosis was made of primary carcinoma of the right bronchus with widespread metastases involving the brachial plexus, hilar lymph nodes and liver. The patient obtained some relief of pain following irradiation of the right brachial plexus and was transferred to another hospital for further therapy

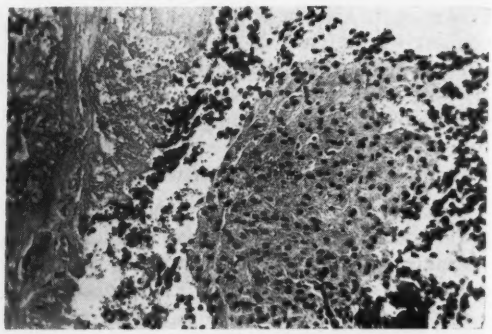

Figure 6, Case 5. Widely necrotic tumor, probably metastatic from oat cell carcinoma of bronchus.

Comment: Needle biopsy of the liver supplemented the lymph node biopsy in proving widespread metastatic carcinoma and in revealing the nature and probable primary site of the tumor as well. Although lymph node biopsy alone would have sufficed in this case, the positive result of the liver biopsy suggests its usefulness in similar cases not presenting an available node for biopsy.

Case 6. A 47-year-old white electrician, who had had an obstructive "growth" in the colon excised 18 months before, returned because of constant tiredness, chills and fever and a 30-pound weight loss, all noted over a nine-months period. Examination revealed generalized wasting, a protuberant abdomen and a markedly enlarged, hard, slightly nodular liver extending across the entire upper abdomen. The sedimentation rate was 36 mm. per hour. Needle biopsy of the liver showed metastatic adenocarcinoma (Figure 7). The patient was discharged on symptomatic therapy.

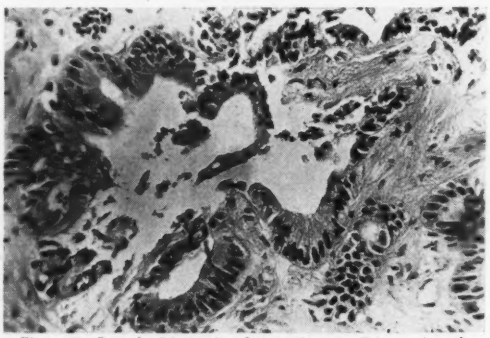

Figure 7, Case 6. Metastatic adenocarcinoma. Primary in colon.

Comment: Here again, needle biopsy established the presence of an inoperable intra-abdominal malignancy, thus confirming the clinical impression and perhaps sparing the patient additional surgery.

Case 7. A 54-year-old white male farmer had noted anorexia, nausea, vomiting, right upper quadrant pain, generalized weakness and weight loss over a period of three months. One and one-half years before he had had a small melanosarcoma excised from the chin, with subsequent x-ray therapy and two operations for removal of metastatic cervical lymph nodes. Examination revealed general wasting, a solitary, hard lymph node in the left posterior cervical triangle, and a large, hard, nodular mass filling the epigastrium and right upper quadrant. The sedimentation rate was 26 mm. per hour. Needle biopsy of the abdominal mass showed liver tissue invaded by metastatic malignant melanoma (Figure 8). The

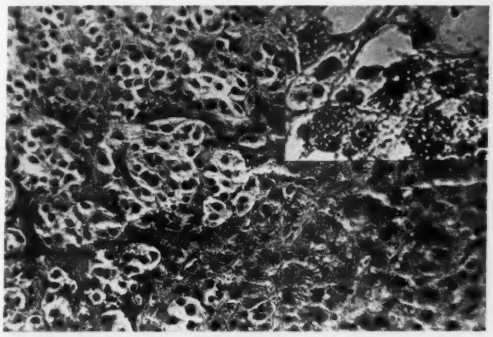

Figure 8, Case 7. Malignant melanoma. Primary in skin. Liver tissue on right and tumor on left. These tumor cells are not pigmented. Inset is a high power view of another area showing melanin granules in the cytoplasm of the tumor cells.

patient subsequently expired, but autopsy permission was not granted.

Comment: Although the clinical data were almost overwhelmingly in favor of invasion of the liver by malignant tumor, needle biopsy established the fact unequivocally and, in addition, revealed the character of the growth.

Case 8. A 58-year old white male dentist had complained of vague anorexia and back pain for one year and, during the five months preceding admission, suffered two attacks of spontaneous thrombophlebitis of leg veins complicated by two episodes of pulmonary infarction. Examination revealed moderate wasting, tachypnea, a weak, rapid pulse, distant heart sounds and a cool right leg. The prostate was moderately enlarged, and the anterior rectal wall above the gland felt indurated. The patient's clinical course was complicated by a myocardial infarction with cardiac decompensation, bladder neck obstruction requiring cystostomy, progressive anemia, recurrent thrombophlebitis, and a progressive mental confusion, all of which combined to prevent an exhaustive clinical evaluation. During the sixth week of hospitalization the hard, nodular liver was palpable for the first time. Bromsulfalein retention was 33 per cent in 45 minutes, but all other liver function tests were normal. Needle biopsy of the liver revealed severe degenerative parenchymal changes and metastatic adenocarcinoma (Figure 9). The patient expired soon thereafter,

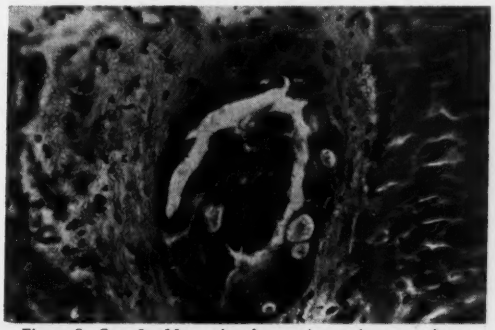

Figure 9, Case 8. Metastatic adenocarcinoma in a portal space. Primary in pancreas. Note large droplets of mucus in several cells and large hyperchromatic nuclei.

and autopsy showed carcinoma of the tail of the pancreas with extensive metastases throughout the abdomen and into the peri-rectal tissues.

Comment: Liver biopsy demonstrated a carcinomatous process as the basic etiology in an unusually baffling and complex case.

Case 9. A 55-year-old white male had been receiving liver extract, iron and vitamin B-12 for anemia for two years and had noted tiredness for three or four months and epigastric soreness for three weeks. Examination revealed a large, firm, nodular, moderately tender liver extending eight cm. below the costal margin, numerous spider nevi on the chest and shoulders and small, hard, movable lymph nodes in both axillae. A blood count revealed 4.8 million erythrocytes with 13.8 gm. of hemoglobin. The sedimentation rate was 22 mm. per hour. The bromsulfalein retention was 17 per cent in 45 minutes and the serum alkaline phosphatase was 16.2 Bodansky units; other liver function studies were within normal limits. A chest x-ray showed a large cluster of lymph nodes at the left hilus and a round density 15 mm. in diameter in the upper lobe of the left lung at the level of the second anterior interspace. Lung markings between this

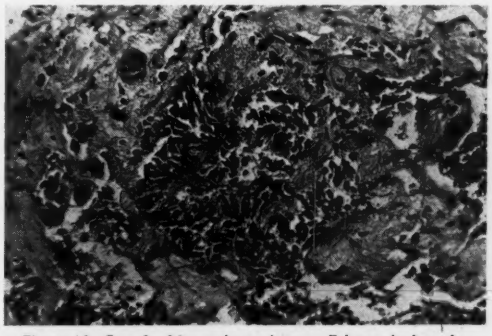

Figure 10, Case 9. Metastatic carcinoma. Primary in bronchus.

density and the hilus were conspicuous. X-ray studies showed no concentration of dye in the gallbladder and no abnormalities of the entire gastrointestinal tract. Needle biopsy of the liver showed metastatic carcinoma of undetermined origin (Figure 10). The patient's nutritional status gradually deteriorated, with eventual hypoproteinemia and peripheral edema. Jaundice appeared, and death occurred soon thereafter from inanition.

Autopsy revealed a primary carcinoma of the left upper lobe bronchus and a 6500 gm. liver which was largely replaced by nodular tumor metastases.

Comment: Needle biopsy of the liver promptly established the diagnosis of metastatic malignancy, although failing to reveal the site of origin.

Summary

Of 18 cases of malignant disease subjected to needle biopsy of the liver during life, nine were diagnosed by the biopsy. Of the remaining cases, six had no liver metastases at autopsy, and the other three showed only small or localized metastases to that organ. We conclude that needle biopsy of the liver will reveal the presence of malignant tumor with rewarding frequency, particularly if the liver is enlarged.

Of the nine positive needle biopsies, eight showed metastatic tumors and one a primary liver cell carcinoma. Of the eight cases of metastatic malignancy, the needle biopsies in two allowed recognition of the type and probable origin of the primary growth.

In two cases, one a particularly baffling diagnostic problem, the needle biopsy of the liver was the only definite evidence of a malignant process within the body.

Bibliography

1. Durkee, W. R., and Wilson, S. J.: Bone Marrow Biopsy as an Aid in the Diganosis of Metastatic Malignancy. Jr. Kan. Med. Soc. 52:361-366 (Aug.) 1951.

Cardiac Arrest: Its Diagnosis, Etiology and Treatment*

Paul H. Lorhan, M.D., and W. E. Swartz, B.A.

Kansas City, Kansas

The catastrophe of sudden circulatory arrest in the operating room is an emergency which will confront almost every surgeon at least once during his career. The active anesthetist will probably see many times this number of cases. It has been stated that a busy surgical clinic may expect approximately two cases a year.[1]

By circulatory arrest this paper connotes the sudden appearance during anesthetic administration and/or surgical procedures of cardiac arrest. The term cardiac arrest may be interpreted in one of two ways:

1. That condition wherein there is the sudden onset of complete asystole.

2. That condition wherein there is an occurrence of ventricular fibrillation.

We have recently had an occasion to observe the former condition in a patient at the University of Kansas Medical Center.

H. A., a 75-year-old white male, was admitted to the University of Kansas Medical Center May 3, 1951, and expired May 9, 1951. His chief complaint upon admission was slight exertional dyspnea, loss of weight, and fatiguability. The onset of this condition had occurred approximately seven months previously, at which time he first noted the minimal exertional dyspnea, which also occurred occasionally during rest. Associated with this dyspnea there had been a minimally productive cough, and an episode of moderate hemoptysis approximately four weeks prior to admission.

Past history revealed a marked allergy to penicillin. In December, 1950, he was a patient at the medical center for treatment of renal disease. At this time pyelograms revealed a non-functioning left kidney. An important finding was a mass in the left hilar region which was discovered on routine roentgenographic studies. The patient had been told that this mass should be investigated and possibly removed. He refused surgical intervention. Thereafter he was followed with monthly films. The mass continued to increase in size; consequently, he returned to the out-patient clinic during the latter part of April. Repeat films revealed a three-fold increase in the size of the mass since the discovery. The patient now agreed to surgical exploration and/or removal.

Physical examination revealed a well nourished, well developed, well muscled, white male who appeared younger than the stated age, who was in no acute or chronic distress. Blood pressure was 150/80 with a pulse rate of 80. He was moderately dyspneic with a respiratory rate of 28. There was paravertebral dullness on the left posteriorly, dullness anteriorly more marked in the region of relative cardiac dullness. Electrocardiograms showed an occasional ventricular prematurity (Figure 1).

Laboratory studies were well within normal limits.

*From the Department of Anesthesiology, University of Kansas Medical Center, Kansas City, Kansas.

X-ray findings showed a mass, lobulated in structure and located in the left hilar region, which extended out along the cardiac margins. The patient was considered a fair cardiac risk in view of his age, probable arteriosclerotic changes, and decreased pulmonary function due to the impinging mass. The diagnosis was felt to be primary bronchiogenic carcinoma. Surgical removal was considered the only hope of cure or palliation of the condition.

Surgery was performed the morning of May 7, 1951. Premedication consisted of phenobarbital grains ½, Demerol 75 mg. and atropine sulfate grains 1/150. Induction and intubation were accomplished without difficulty by using one mg. of decamethonium bromide (syncurine) and 10 cc. of 2.5 per cent solution of pentothal sodium. The patient was placed in position for a left pneumonectomy. A fluctuation of blood pressure appeared and persisted throughout the operation; however, this was never extreme and did not vary over 15-30 millimeters of mercury. Anesthetic agents were nitrous oxide, oxygen, and pentothal sodium.

A left radical pneumonectomy was carried out with an intrapericardial approach to the major pulmonary vessels. The surgical opening in the pericardium overlying the right atrium was about five centimeters in diameter. The operation continued without event until the pulmonary artery was dissected free and manipulated prior to ligation. There was a noted incidence of a number of ventricular prematurities at this time, and this continued until the chest was closed. Whole blood, 500 cc., was administered; the blood loss did not appear to be in excess. The pericardium was not closed in view of the possibility of a postoperative cardiac tamponade. The chest was closed in the usual fashion with establishment of negative pressure by the suction technique.

When an attempt was made to turn the patient to the supine position, it was noted that the previously strong radial pulse had ceased, and simultaneously the patient was having gasping respiratory efforts and becoming cyanotic. An endotracheal tube was in place and positive pressure breathing with the bag, containing 100 per cent oxygen, was started immediately. The chest was re-opened within 45

Figure 1. An occasional ventricular premature contraction is recorded as noted in Lead I. There is some notching of the QRS complex as noted particularly in Leads III and AVL, which may be associated with some conduction defect of the myocardium, non-specific in character. Otherwise the record is not unusual.

seconds after noting the absence of pulse and respiratory difficulty. Upon opening the chest the myocardium was observed as being in complete asystole. One cc. of 1:1000 adrenaline hydrochloride and five cc. (500 mg.) of procaineamide were injected into the right ventricle. Cardiac massage was instituted immediately. The patient had been without pulse for an interval of one minute. After approximately three minutes of vigorous massage, the myocardium began contracting weakly, and one minute later it appeared to be essentially normal in contractile properties.

At this time electrocardiographic tracings were taken (Figure 2). These tracings indicated a bundle branch block with second degree heart block.

The blood pressure stabilized at 90/40 with a pulse of 60. The chest was closed, and the patient remained in the lateral position for approximately two hours. The patient was then bronchoscoped and returned to the recovery room. Blood pressure at this time was 100/60 and the pulse rate was 90. Electrocardiograph tracings taken 24 hours after the previous gram were within normal limits.

The postoperative course was stormy. The patient did not recover complete equilibrium and sensorium, although he did clear slightly. He responded to loud noises and, seemingly, recognized attendants, but he was incoherent as to his previous work in the field of chemistry. His course continued downhill and in mid-afternoon on May 9, 1951, two days postoperatively, he suddenly sat up in bed and complained of marked dyspnea. There was emesis of several hundred cubic centimeters of frank blood-stained fluid. Respiration ceased.

Upon reviewing the case, the surgeons speculated as to the cause of the cardiac arrest. They surmised that the patient had become stabilized (cardio-circulatory system) to the lateral position of operation. When an attempt was made to turn him, a mechanical and reflex circulatory collapse (by torsion of the great vessels) was precipitated, causing a markedly diminished cardiac output with a resultant cardiac failure.

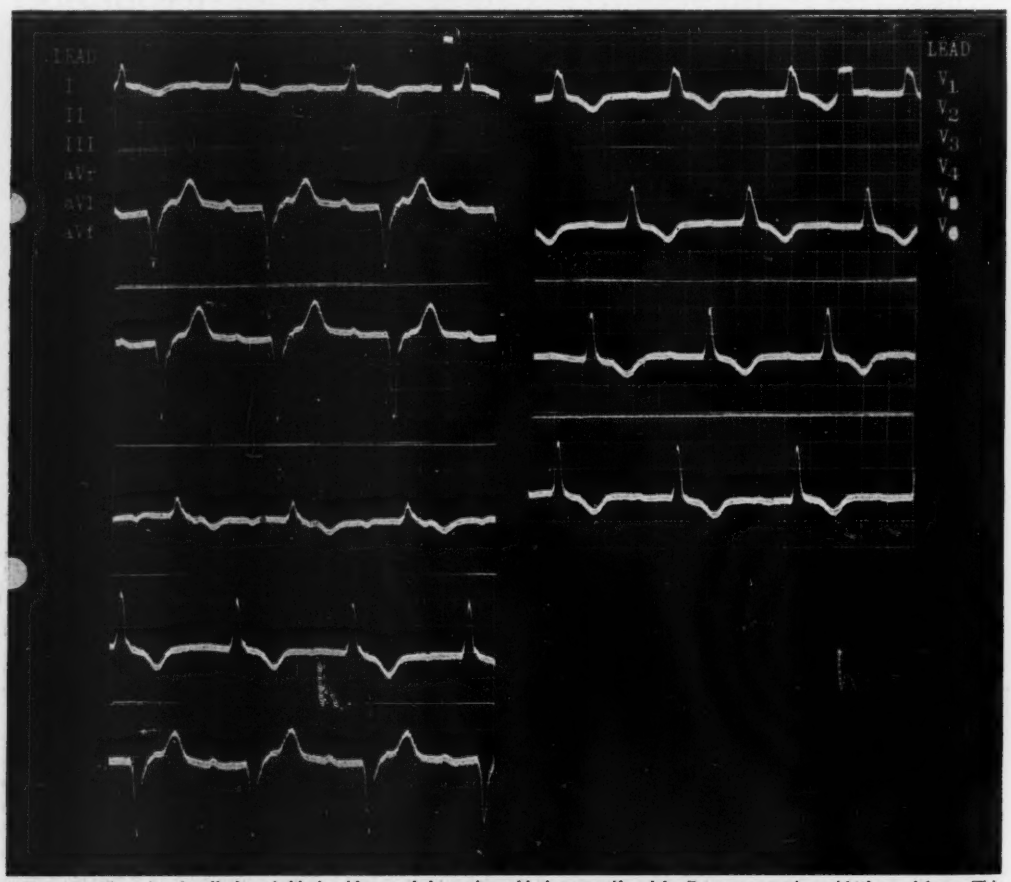

Figure 2. There is a bundle branch block with second degree heart block as manifested by P waves occurring with dropped beats. This is manifested in Lead II with the P wave preceding the QRS complex by .28 seconds and a P wave falling just after the QRS complex, preceding the T wave.

Others (P. H. L.) of us thought that in view of the electrocardiograph tracings, the condition might have been a mechanical heart block. It is recalled that there was a defect in the pericardium overlying the right atrium and coronary sulcus, and that there seemed to be an over enthusiasm in the re-establishment of negative pressure in the left chest. These two factors, plus the turning of the patient to the supine position, might have precipitated a herniation of the right atrium, or portions thereof, through the pericardial defect, thus causing, in effect, a constrictive pericarditis with resulting mechanical heart block. Any attempt at a postulation of the actual etiology of the arrest in this patient would be pure speculation. The essence of this paper is to discuss the subject of cardiac arrest, its diagnosis, its possible etiology, and its treatment.

Diagnosis

It is recalled, by reviewing the case history of H. A., that the first indication of the possibility of a cardiac arrest was the evidence of the apparent respiratory difficulty and cyanosis. This condition occurred at the anesthesiologist's station. At approximately the same time, it was noted that there was a lack of pulsation of the radial artery.

It is found from perusal of the literature that the first indication of cardiac arrest is sudden, gasping, respiratory efforts, and that such a condition is usually first seen by the anesthetist. Simultaneously, there is also noted the absence of pulsation in the peripheral vessels. When the surgeon is instructed of the patient's condition, he notes the absence of pulsation in the large vessels, along with the lack of bleeding from the operative wound. The anesthetist likewise notes the absence of blood pressure. If there is sufficient hemoglobin, and especially if the patient is in the Trendelenberg position, a marked cyanosis will be observed. If the head should be in a higher position than the heart, an ashen pallor is evident rather than cyanosis. All of these factors constitute the diagnosis of cardiac arrest; however, any of these factors will necessitate prompt attention to the possibility of the condition and the prompt application of necessary palliative measures.

Etiology

The etiology of the condition is of the utmost importance if therapeutic measures are to be efficacious in the treatment of the condition. This is especially true concerning the use of pharmacologi-

Figure 3. The rhythm is sinus in origin. The record is essentially unchanged from the preoperative tracing.

cal agents and the institution of possible prophylactic measures. The etiology of the condition of cardiac arrest may be divided into several broad physiological principles.

I. Parasympathetic effects with resulting cardiac asystole.

A. *Vago-vagal Reflex.* This mechanism is probably of greatest importance as an etiological agent in the precipitation of cardiac arrest. In this mechanism there is thought to be a stimulation of various areas containing afferent fibers of plexi of vagal origin. The stimuli, it is postulated, may pass up the vagus nerves via afferent fibers, impinge on the dorso-lateral nucleus of the brain stem, and pass back down the vagal efferent tract to the heart. These impulses may cause a marked bradycardia or even cardiac arrest.

An example of this reflex may be seen in the work of Michael Johnstone.[2] He found that there was vagal inhibition of the heart during inhalation anesthesia. This inhibition, he felt, varied directly with the irritancy of the inhaled vapor. The anesthetic probably stimulates the sensory nerve endings in the lungs with resulting cardiac inhibition through the pulmo-cardiac reflexes. He found a profusion of arrhythmias during this work which offered further proof to the explanation of vago-vagal reflex. The various arrhythmias found were: sinus bradycardia, A-V nodal rhythm, partial and complete A-V block, A-V nodal bradycardia, ventricular standstill, and complete cardiac arrest. He also found that all of these possibilities were prone to occur in individuals of supposedly increased vagal tone, due either to organic lesions or to parasympathotonia. Many other examples of this reflex may be found anatomically, due possibly to the impingement of other efferent fibers on the vagal nuclei.

B. *Direct Vagal Stimulation.* This mechanism is somewhat more rare than the vago-vagal reflex. It consists merely of stimulation of the vagus nerve with resulting inhibiting impulses passing down the efferents to the receptors of the myocardium.

C. *Parasympathomimetic Effects of Barbiturates and Cyclopropane.* It has been found by various workers that the intravenous barbiturates and cyclopropane act synergistically in a parasympathomimetic fashion to cause cardiac inhibition by enhancing vagal tone.

II. Sympathetic effects with resulting ventricular fibrillation and, in essence, a functional cardiac arrest.

A. *Anesthetic Agents.* Various anesthetic agents have been found to cause increased sensitivity of the heart to epinephrine with resulting increased cardiac irritability which, combined with other stimuli, may cause ventricular fibrillation.

B. *Shock of Surgical Procedure.* The shock of prolonged and hazardous surgical procedures has been found to create an increased sensitivity of the myocardium to epinephrine with resulting effects as above (see II-A).

C. *Carotid Sinus Stimulation.* Incidents of carotid sinus stimulation have been postulated as causing ventricular fibrillation.

D. *Excitement.* Excitement creates an increased secretion of epinephrine which, coupled with an increased sensitivity of the myocardium to epinephrine, may precipitate ventricular fibrillation.

E. *Hypoxia.* Hypoxia is another condition in which there is an increased irritability of the myocardium and, with associated increases in epinephrine, may cause ventricular fibrillation.

III. Hypoxia.

A. *Acute Hypoxia.* Acute hypoxia not only may function in the method above, but may actively cause failure of the heart.

B. *Acute Hypoxia Coupled With Chronic Hypoxia.* Acute hypoxia is recognized as being extremely dangerous to the patient who has long suffered from chronic hypoxia with only the carotid sinus functioning as the regulator of respiration. When such acute hypoxia (with associated increases of carbon dioxide) occurs, it affects the carotid sinus and vasomotor center adversely, causing respiratory embarrassment, vasomotor collapse, and possible cardiac arrest.

IV. Shock.

The condition of typical primary shock due to blood loss and vasomotor collapse can decrease the cardiac output to such an extent that there is cardiac arrest (failure) due to the increased load on the heart.

V. Over-Dosage of Anesthetic Drugs or Abnormal Sensitivity to Anesthetic Agents.

A. *Ether.* Ether may cause vasomotor collapse and peripheral dilatation with resulting fall in blood pressure and possible cardiac arrest (failure).

B. *Ethyl Chloride and Chloroform.* These drugs actively depress the myocardium, and, in those patients of unstable cardiac reserve, they could feasibly cause cardiac arrest.

C. *Cyclopropane.* Cyclopropane not only increases the sensitivity of the myocardium to epinephrine but also actively slows the conduction time of the transmission system of the heart.

Treatment

After careful perusal of the foregoing classification of the possible etiologies of cardiac arrest, it will be seen that the treatment can be rational and

efficacious when based on a knowledge of the possible etiology. Treatment may be irrational and haphazard when random methods are tried without attention to the possible causative factors.

True cardiac resuscitation has been defined as "full and durable restoration, in due time to avoid eventual death, of the essential functions of a heart which has lost its power to propel blood and which, to all appearances, is unable to recover spontaneously its effective value as a pump." Resuscitation is accomplished by two main methods: 1. restoration of the oxygen system by breathing actively 100 per cent oxygen via an endotracheal tube; 2. restoration of the heart beat by cardiac massage.

Restoration of the oxygen system is imperative to allow maximum oxygenation of a diminished blood supply. Such restoration is necessary for good oxygenation of the central nervous system which incurs irreversible damages after three to five minutes of hypoxia. Active artificial respiration has also been found to further enhance the circulation. Naturally, with a pump that has failed, the oxygenation of the lungs does no good unless blood is coursing through the lungs to be oxygenated. This is accomplished by manually operating the "pump," i.e., cardiac massage. It is found that upon active massage the blood pressure can go as high as 100/60; the pulse can reach between 40-60 per minute; and a strong pulse pressure can be palpated in the peripheral vessels. The above maneuvers can keep the patient alive until the myocardium resumes its function.

These measures are the emergency treatments which are used while other agents are being attempted in order to alleviate the causative situation. If the condition is thought to be due to shock, massive transfusions may be given. If the condition is thought to be due to heart block or other evidences of decreased irritability, epinephrine may be given in the region of the S-A and A-V node to stimulate the pacemakers. Pronestyl (200 mgm.) and procaine hydrochloride (100 mgm.) have been used to decrease the irritability of a fibrillating ventricle and also have been used in cases where extreme abnormalities of rhythm were noted prior to the arrest. Johnstone[2] has advocated the use of atropine, either intermuscularly or intravenously, during arrest for those cases where vagal stimulation, directly or indirectly (vago-vagal reflex), is the precipitating factor.

Special attention should be given to the necessity of distinguishing the two forms of arrest. The wrong type of therapy can remove all possibilities of resuscitating the patient. If there is cardiac asystole, epinephrine is the drug of choice for stimulating; and procaine or pronestyl will not be contraindicated. However, should it be a case of fibrillation, nothing should be done, not even massage, until the heart has been defibrillated. Epinephrine in a fibrillating heart is definitely contraindicated because it increases the irritability. Various methods of defibrillation have been attempted. Among these methods are procaine hydrochloride and pronestyl. A newer method, devised by Beck,[3] has advocated the use of an A.C. current of 110 volts and 1.5 amperes to cause the cessation of the circus movements in a fibrillating heart.

Techniques of massage are widely varied in so far as the approach to the heart is concerned, but the massage is essentially the same. It consists of a gliding stroking motion toward the great vessels either compressing the heart between the thumb and fingers or against the sternum. Various approaches are transperitoneal subdiaphragmatic, transperitoneal transdiaphragmatic and transthoracic. Beck has recently developed a suction cup apparatus for massage which seems to be somewhat more efficacious because a better filling of the chambers is accomplished, and the pulse rate can be increased greatly over that of the manual technique.

Summary

A case history of cardiac arrest is given along with the various postulations as to the etiology. The diagnostic findings in cardiac arrest are elaborated. A comprehensive classification of the various possibilities of etiology is outlined. The treatment of the condition with emphasis on pharmacological agents, techniques of massage, and defibrillation has been discussed.

Bibliography

1. Ruzicka, E. R., and Nicholson, M. J.: Cardiac Arrest Under Anesthesia, J.A.M.A., 135:10, November 8, 1947.
2. Johnstone, M.: General Anesthesia and Cardiac Inhibition, British Heart Journal, 13:1, January, 1951.
3. Beck, C. S., and Rand, H. J.: Cardiac Arrest During Anesthesia, J.A.M.A., 141:17, December 24, 1949.

The Early Care of Injuries of the Genito-Urinary Tract

Committee on Trauma, American College of Surgeons

Injuries of the Kidney

Injuries of the kidney range from a mild contusion without rupture of the capsule, through all grades of rupture and crushing to complete severance of the vascular pedicle. There may be no other injuries or there may be accompanying injuries such as lacerations, fractures of ribs, limbs, or skull, puncture wounds, et cetera. The kidney may not be the only internal organ damaged and in many instances the injuries to other organs are more important than that to the kidney.

Injuries to the kidney result from (1) falling against a rail or other edge; (2) collision with others in sports such as football, baseball, hockey, et cetera; (3) a blow on the abdomen or flank by a piece of machinery or falling object; (4) crushing injuries, as between two cars; (5) automobile, coasting, and skiing accidents; and (6) gunshot wounds.

Diagnosis is usually not difficult. The appearance of blood in the urine in any amount, large or small, combined with the history of injury and pain in the flank, is usually sufficient. Usually present are other findings such as tenderness and perhaps tumor in the kidney region, rib fracture, or local body lacerations.

It is more difficult to determine the severity of the injury to the kidney, and for this pyelography is essential. Excretory pyelography often shows only nonfunction of the affected kidney; but retrograde pyelography, if feasible, will usually show the extent of rupture and of destruction of the normal pelvic architecture.

Treatment is directed, first, to the saving of life and, second, to the conservation of renal tissue and function.

The patient's general condition is the most important guide to the immediate treatment. If the general condition is good and remains so, with normal or rising blood pressure and no evidence of increasing or serious hemorrhage, a period of quiet rest is the best treatment. Especially in children, this should not be cut too short. If the pyelograms show no great deviation from normal renal architecture, both the patient and his kidney may be expected to recover completely.

If condition at first is good but deteriorates with falling blood pressure, evidence of increasing hemorrhage and a growing mass in the flank or upper quadrant, or if the patient is in collapse when first seen, transfusions should be given and the degree of renal injury determined by pyelography. If this shows no great deviation from normal, it is still advisable to refrain from operation and trust to rest and further transfusion, since most of such patients will recover. A few may require operation later because of perinephric abscess, cyst, or hydronephrosis.

When the pyelogram reveals that the kidney is blasted beyond recognition and especially if signs of progressive hemorrhage are evident, prompt nephrectomy is indicated, provided the patient's general condition will permit. Experience has shown that nephrectomy in the presence of severe shock is very often fatal. In gunshot wounds with concomitant bowel perforation the whole attention should be given to the bowel and no attempt made to repair the kidney unless the patient is an excellent surgical risk.

In summary, it is safe to say, first, that the great majority will recover without operation, but there is a small group in which the kidney has been irreparably damaged and must be removed; second, operation on the kidney during shock is absolutely contraindicated; and, third, retrograde pyelograms give essential information often not obtained from excretory pyelograms.

Injuries of the Bladder

Except for the penetrating wounds of warfare and the occasional accidents of pelvic and transurethral surgery, rupture of the urinary bladder almost always occurs as a complication of fracture of the bony pelvis. Fully 95 per cent of bladder ruptures encountered in civilian practice are from this cause. Indeed, the coincidence is so classical that in every case of pelvic fracture, bladder rupture should be suspected and immediate examination carried out lest it be overlooked and hours of serious urinary extravasation occur before it is discovered.

With the pubic arch or one of the pubic rami splintered, a spicule of bone cuts or pierces the front bladder wall. Accumulated urine within the bladder flows out into the loose areolar tissue of the space of Retzius from tonic bladder contraction and, thereafter, that which is excreted continues to extravasate. After only a few hours of this leakage, extensive extraperitoneal extravasation of the pelvic cavity occurs with severe phlegmonous destruction of the infiltrated tissues and extreme general toxemia from local absorption. In these rare instances in which the bladder fundus is ruptured, the leakage is intraperitoneal and, surprisingly enough, far better tolerated than when the perivesicular structures are infiltrated.

The *symptoms* of bladder injury are often obscure until such time as extensive extravasation has oc-

curred. Unless bladder injury is suspected, the deep pubic distress can easily be mistaken for the pain of the pelvic fracture. Occasionally persistent bladder spasm occurs with so-called bloody anuria, i.e. frequent attempts at voiding but passing nothing but a few drops of blood. Far more often than not, if bladder injury is not suspected and adequate examinations made, the situation will go unrecognized until board-like rigidity of the lower abdomen develops from peritoneal irritation. Meantime increasingly profound general symptoms develop.

The *diagnosis* depends entirely upon direct examination. Every patient with pubic fracture should be catheterized *at once.* If a catheter enters readily, the urethra is not seriously damaged. If some quantity of clear urine is obtained, the bladder is not damaged. Indeed, one may then be certain that no injury has occurred anywhere throughout the urinary tract. If a sizeable quantity of urine is obtained, even though it may be bloody, there is reasonable assurance that nothing worse than bruising of the bladder wall has occurred and an indwelling catheter for a few days is all that may be necessary. Excretory urograms should, of course, be done to exclude renal injury causing the bleeding.

But if the catheter enters the bladder readily and nothing is obtained but a little watery or clotting blood, bladder rupture is almost a certainty.

The simplest means of confirming the diagnosis of bladder rupture is both time-honored and, if done under proper sterile technique, quite safe. A measured quantity of sterile water (perhaps 200 cc.) may be injected through the catheter and, if little or none can be recovered, bladder rupture is almost certain. If the exact amount can be recovered, bladder rupture is not likely to be present.

While this simple procedure is quite useful as a makeshift, there is room for error and it is far better, when possible, to use a small amount of opaque medium commonly used for intravenous urography, adding it to 200 cc. of sterile water, and take a cystogram (anteroposterior and semilateral). Diffusion of the dye in the extravesical tissues of course cinches the diagnosis.

The *treatment* of bladder rupture entails two things—and the quicker they are accomplished the better. First, further extravasation must be stopped at once by an emergency cystostomy. Second, all of the loose areolar tissue in front and at the sides of the bladder presenting the telltale watery appearance of extravasation must be opened widely by finger dissection and drained by multiple Penrose drains. While it is far less urgent than either of these, some attention should be paid to the bladder injury itself. Usually this amounts to nothing more than a small puncture wound in the front bladder wall that can be closed with a single stitch or even used as the cystostomy opening if near the midline. Unless extravasation has been unusually extensive the drains can be withdrawn gradually after a few days and a Foley bag catheter exchanged for the cystostomy tube until the wound has healed.

Injuries of the Male Urethra

Injuries of the male urethra require early recognition and prompt treatment. The immediate danger is shock and extravasation. Minor injuries may heal spontaneously while severe injuries are surgical emergencies. They may be divided into two groups: (1) anterior urethra, which includes the bulbous portion, commonly involved in straddle injuries, and (2) posterior urethra, more often involved in fractures of the bony pelvis.

Symptoms and Diagnosis: (1) blood at the meatus is the earliest and most common sign; (2) retention of urine occurs in severe injury; (3) the swelling of urinary extravasation may be seen in the perineum, scrotum, or lower abdomen if the patient has urinated; (4) rectal examination is valuable in posterior urethral injury. In complete rupture the prostate is rendered movable and dislocated upward; (5) catheterization is imperative to determine the degree of injury but must be done with utmost gentleness and strict asepsis.

Treatment: If catheterization is possible, a Foley bag catheter should be left indwelling to prevent voiding with the danger of extravasation. If clear urine in quantity is obtained, there is assurance that injury of the bladder has not occurred.

If a catheter will not pass, it is evidence that complete rupture has occurred. Two problems at once present themselves: first, extravasation of urine and, second, re-establishing continuity of the urethra. Fortunately an asthenic retention often occurs and the patient is seen before he has extravasated his torn tissues by voiding. In such an event, *immediate* cystostomy must be done. If delay is unavoidable, suprapubic trocar puncture is justified.

If the patient has already extravasated his tissues by voiding, immediate cystostomy still is indicated to avoid further extravasation. At the same time, wide incision and drainage of the extravasated areas must be done to prevent massive tissue sloughing and infection.

With the bladder open, a sound can be passed from within outward to meet a second sound passed into the urethra. Holding metal on metal the outer sound can be guided past the fault in the urethra and advanced into the bladder. The heel of an ordinary catheter may then be pushed tightly onto the tip of the sound and drawn back out of the urethra. The tip of a Foley bag catheter may then be stitched to the plain catheter and drawn into the bladder and

inflated. It is left indwelling two or three weeks as a splint over which the urethra will bridge and heal. It also offers perfect bladder drainage so that cystostomy drain can be removed in a few days and the wound allowed to heal.

Injury of the female urethra is uncommon. A catheter can usually be passed and may be left in place five to ten days, depending upon the extent of injury.

Injuries of the External Genitalia

Closed wounds, such as contusions or rupture of the penis, are treated expectantly. Large hematomas should be evacuated under rigid asepsis.

In open wounds of the penis and scrotum, general surgical principles apply. Restore normal conditions as far as possible. If the testis is avulsed but blood supply is intact, replace it in the scrotum. Primary repair is usually possible and seemingly hopeless wounds will often heal without difficulty. The following procedure is recommended:

1. Cleanse with soap and water, and irrigate with saline.
2. Save every bit of viable skin. It is seldom necessary to trim skin edges.
3. Control hemorrhage. Compression may be applied to the penis over an indwelling catheter. Sutures may be necessary in bleeding from corpora.
4. Close without drainage, using absorbable suture to skin of scrotum. Is skin is totally denuded and inadequate for closure, apply fine mesh vaseline gauze and arrange for early split-thickness skin graft.
5. Protect with antibiotics and administer antitetanus therapy.

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A LETTER FROM THE DEAN

At this time when I assume the duties of dean of the University of Kansas Medical Center I wish that it were possible for me to write a personal letter to each one of you who is a member of the Kansas Medical Society. Since time and facilities do not permit of this, I hope that this general letter will serve in its stead.

As you all know, I have been associated with the medical center for one year; I arrived here in days of hardship for the state, just as the waters were building up to a disastrous flood. I take over my duties now in the days of good fortune when our record wheat crop is being harvested. I hope that this latter evidence of the abundance of nature represents an omen for the future of our school. Certainly it represents to me the complete meaning of our state motto.

I should like to reaffirm to you the functions which a medical center such as ours must provide. These, primarily, are: education, research, and community service. Each of these functions, I believe, is important to you as well as to the members of our allied professions: nursing, pharmacy, veterinary medicine, and hospital councils. The medical center is here to serve all of you and it is my purpose to implement this service.

Our function of education has many facets—the medical school, the nursing school, the training of medical technologists, occupational and physical therapists and practical nurses, and, to me the one of great prominence, our program in postgraduate medical education. We have at the moment one of the outstanding programs in postgraduate medical education in the country. It is my hope that we shall be able to continue our leadership in this field; it is my promise to you that this is of prime importance in our charting for the future.

With this program we need your help. We need above all else your suggestions, your critical comments and your advice. Here, as in every other function of the school, our problems are your problems, our plans are your plans, and our success, when it comes, must be your success. I cannot conceive of any two entities within a state whose aspirations and problems are more indissolubly one than the school of medicine and the medical society. For this reason I pledge our cooperation to you and ask your cooperation for us. Together we cannot fail to strengthen and improve our mutual programs designed to benefit every citizen of Kansas.

I hope that in the near future I may have the pleasure of meeting each one of you. I trust that when you visit the medical center you will find time and feel free to come in and visit with me. In like manner I shall feel free to call upon you as I travel throughout the state.

I am taking over my new duties with humility and yet with pride. I am proud of our school and its achievements, but I am most proud of the fact that I am a Kansas physician.

W. CLARKE WESCOE, M.D., Dean
University of Kansas School of Medicine

PRESIDENT'S PAGE

Dear Doctors:

The history of the medical profession—past and present—is one of the most interesting, and in fact, amazing of all human documents. The achievements of medicine in the past 50 years through research and discovery are truly amazing and have resulted in the perfection of tools for the medical profession which have had far-reaching results in the treatment of human ailments to the end that many of the formerly dreaded diseases of the past are now in reality only memories.

The span of life has also been substantially increased. The average American is receiving more and better medical care as a result than ever before, and certainly we are the best cared for group of people in the world.

All of this has recently been given a great deal of publicity; however, there are other factors which are definitely responsible for this marked progress of American medicine. We would call your attention to one of the most important. We refer to the moral conscience of the profession at large. Probably no one in the professional field or otherwise has a greater opportunity to exploit the public more completely than the medical profession. Let it be said to the credit of the profession that this has been done only in a very minor degree, due to the existence of the very definite conviction of the profession at large in regard to this matter of moral consciousness.

Dr. Rudolf Matas in describing this matter has said, "The moral conscience is that intangible something, a still small voice that rising from the depths of our inner-most selves whispers a warning when we are doing wrong. It is the spirit of ancestral generations which, whether good or bad, is housed in us while in transit to our successors. When a man wakens to the ring of his conscience, gets to work and starts to put his house in order, we may say he has character. Character is the will to put into action what the voice of conscience has roused in him. Conscience without the will to act upon its bidding is powerless and might as well be dead."

The existence through the years of the history of the profession of a moral conscience, together with the development of a medical conscience, has been one of the finest contributions of the profession to human existence. It has possibly not been given the publicity which it so well deserves; however, without it as a foundation, the record of modern achievements in medicine could not have been so wonderfully written.

EDITORIAL COMMENT

More Power from Niagara

An interesting pamphlet recently was prepared by five electric power companies in New York. They are fighting a legislative proposal to create a huge federal power plant at Niagara which will furnish electricity for a wide area around New York. This is unrelated to any problem of medical care, but since it quite clearly represents an encroachment by the federal government upon free enterprise it was considered worth reviewing for the physicians in Kansas.

The United States Senate ratified a treaty with Canada in 1950 which permits the United States to utilize additional water from the Niagara River for power production purposes. Shortly thereafter Senator Lehman of New York and Representative Franklin D. Roosevelt, Jr., also of New York, proposed bills to construct such power plants from federal tax funds. The five electric power companies declared that they are in a position to build such plants quicker and cheaper without tax money and that the revenue from this power will produce additional tax income instead of reducing it as would be the case under the other proposal. They state in part, "Loss of tax revenue is a serious threat to our national income, and any project that means curtailment of tax revenue—especially when private enterprise is ready, willing and able to do the job—should be rejected." These companies claim the total public benefit would be $40 million yearly under development by private enterprise.

The real point of this battle is that this is the first time the federal government has offered to invade the field of free enterprise for the construction of machinery solely to create electric power. In every other instance the construction has been performed on the basis of flood control, navigation, reclamation, irrigation or sanitation. This is strictly a project to provide more electric power and nothing else. This has nothing to do with the controversial St. Lawrence seaway which is 250 miles from Niagara Falls.

It is, therefore, federal invasion of the field of electric utility companies. Should the bill pass, tax money will be used for the creation of this project. The pamphlet was sent to medical societies, and the above summary is published here, to show that the problem of socialization involves not one business or profession but all of them. Today America is no longer fighting just socialized medicine but the encroachment of socialization in all fields of enterprise. This thought is stated in the pamphlet as follows: "The issue is clear cut. Shall the government enter directly into competition with its own citizens in the production and sale of electricity? And if government is to be permitted to nationalize the electric light and power industry, what is to prevent nationalization of other industries? Banks, for instance, transportation, the oil and steel industries, etc? Other countries have followed that pattern, and today America is being called upon to help pay for their costly experiments."

Malpractice Insurance

There has been considerable confusion in the minds of numerous physicians on the subject of malpractice insurance. Sufficient questions have been asked to make it appear appropriate that a statement be carried in the Journal.

The Kansas Medical Society believes it only good judgment for each practicing physician to carry malpractice insurance. There are four or five or perhaps more reliable companies selling insurance of this type in Kansas. These companies differ in their philosophy on how much insurance the individual physician requires, and the medical society does not believe itself to be in a position to argue this point. Some companies favor low limits and careful legal attention to each case, while others insist that higher limits are necessary. Physicians can be found who will support each of those views, and some have purchased policies with more than one company.

An occasional member carries no malpractice insurance in the mistaken belief that the Kansas Medical Society provides him protection should this be required. In an effort to make this point perfectly clear, it is stated again that the Kansas Medical Society carries no malpractice insurance for any physician. The Society strongly urges each doctor to provide such protection for himself through whichever company he wishes to select. The Kansas Medical Society does have a Defense Board which may be of assistance but only within specific and limited fields.

Assistance from the Defense Board is supplemental to the work of an insurance company and is available to a physician upon request, and then only following approval of his county society and the councilor of the district in which he resides.

The revised Constitution and By-laws, Chapter IX, Section 1, carries the following explanation. "Members of the Kansas Medical Society are urged to carry individual professional insurance with commercial companies as these usually include possible indemnity in their policies, but additional assistance of the Society Defense Counsel may be provided if

necessary or desired. It shall be the duties of the members of the Defense Board, severally or collectively, to investigate all claims of malpractice made against members desiring Society assistance; to assist in conducting the defense, and to pay the Society defense attorney his fee and expenses from funds of this Society within their control, but they shall not pay or obligate this Society to pay any court costs or judgments rendered against any member in the final determination of any case, nor shall they be obligated without affirmative action to pay the fees of any local attorney employed by the member. The Defense Board shall be empowered to contract with agents or attorneys as it deems necessary, insofar as the amounts to be expended thereby are approved or do not exceed the amount of the annual budget for defense purposes."

The by-laws give more details concerning the work of the Defense Board, but the above paragraph explains the limits within which the Defense Board can operate. Any member wishing further information on this subject may write the Executive Office for a copy of the Constitution and By-laws.

Another frequently asked question is why the Kansas Medical Society will not select one company from which all members might purchase their malpractice insurance. This answer is relatively simple when viewed from the experience of states that have followed such procedure. It has happened that one or another company has withdrawn its policy from a certain state as a result of a series of adverse judgments. Should that happen where only one insurance company is operating, it could immediately affect each practicing physician in the state. Moreover, the medical profession has experienced excellent service from several companies currently operating in this state and therefore it is believed that the individual physician should make his own decision according to his own knowledge as to which company he prefers.

American Apathy

A great hue and cry has been raised recently by civic clubs, women's organizations and editorial writers throughout the country in an effort to instill basic principles of citizenship in the people of voting age in this nation. But the American people, accustomed as they are to independence in thinking, action, and, if they are so disposed, lack of action, continue to be apathetic about registration and voting.

Opportunities to exercise citizenship abound in business and professional life, but the most direct and most effective application is at the polls. In spite of the importance of this opportunity, voters are so indifferent that the turnout decreases at each election. Only 49 million of the approximately 96 million eligible voters in the United States cast ballots in the 1948 election.

A recent study by the Saturday Evening Post compared election participation in this country with that of other leading nations of the world and disclosed that only 51 per cent of our people were interested enough in the conduct of national affairs to express their preferences. In the most recent election in Belgium, 90 per cent exercised their right of franchise; in Italy, 89 per cent; in Great Britain, 82 per cent; in France, 75 per cent; in Japan, 70 per cent.

It is granted that residents of those countries have had more direct threats to freedom than we have known. Among their neighboring countries they find evidence of the power that takes over when freedom is lost. They understand from personal observation that citizens who do not safeguard their liberty soon lose their individual rights. They are concerned about what might happen to them; they make use of their opportunity to vote for the candidates who will truly represent them and their ideas in government.

We know nothing of dictatorships from experience or from personal observation. Our battle is to maintain the advantages we now enjoy, an easier battle by far than would be a struggle to regain freedom should it be lost. We are acutely conscious of military aggression by foreign powers that threaten, but lose sight of the fact that the apathy and indifference of the American people constitute a greater threat than any from abroad.

Too many of us use the trite but jocular remark that those who don't vote aren't entitled to criticize or complain about government. That negative attitude accomplishes nothing. If the positive approach were used, if all eligible voters appeared at the polls, perhaps there'd be less to complain about. A recent Gallup poll turned up the interesting fact that 71 per cent of the persons queried about national affairs complained about taxes. Could it be possible that all those complainers were among the 51 per cent who voted?

All persons can state with truth that there are too many demands on their time, that they don't have an opportunity to take part in as many worthy activities and organizations as they wish. The complexity of modern life makes valid that statement, especially so for the physician who has professional as well as civic, business, personal and social responsibilities. But the exercise of citizenship by voting is not time-consuming and those who wish to cast a ballot can find time to do so. We will have the government our forefathers envisioned "...of the people, by the people, for the people," only when we are represented 100 per cent at the polls.

Conference of Presidents

The Conference of Presidents, annually held on the Sunday preceding the A.M.A. session, is always an outstanding event but never more so than at this past occasion. Six scholarly addresses on economics, government and free enterprise were startling in their power, their forthrightness, their direct approach.

All were excellent but listing only the more nationally known figures, the audience listened in succession to Mr. Allan B. Kline, Chicago, president of the American Farm Bureau Federation; Mr. Clarence Manion, J.D., South Bend, dean of the law school at the University of Notre Dame and author of the currently popular "The Key to Peace;" and to the Honorable Walter H. Judd, M.D., Rochester, prominent member of the Congress of the United States. It will be impossible to summarize these speeches, so the following is merely a sentence or two from what was said during this memorable occasion.

On the subject of taxes: You may look at taxes however you wish, but the ultimate truth is that every tax represents a transfer of purchasing power from the people to the government. As taxation becomes heavy the people's purchasing power decreases and the power of government grows great. Since ours is not a pure democracy, as many misguided enthusiasts believe, but instead a representative government, it becomes of tremendous importance to the governed that they should select carefully those persons they wish to have represent them. The elective process empowers the victor to that office to decide how the tax portion of this income will be spent. He further controls the amount of your income that will be taken over for taxes.

On inflation: "Don't call it socialism; call it what it is, tyranny. Don't call it inflation, but give it its proper name, larceny." Inflation is caused by the federal government's deficit spending, which is as surely stealing from the people of this nation as any other form of thievery.

On government: One speaker quoted James Madison as follows, "If people were angels, we would not need government; if governors were angels, government would not need restriction; but since neither is true we must have government, and government must be contained." He then presented a very large thought in simple words which it is recommended might be carefully considered by every individual who has taken the time to read this summary. It is recommended that this thought be expanded to evaluate our present situation and our hope for survival in the future as free men under a democracy. The statement was, "Big government is for little people; only big people can afford the luxury of little government."

DEATH NOTICES

RALPH ALLISON LIGHT, M.D.

Dr. R. A. Light, 80, an active member of the Neosho County Society, died June 3 at Chanute. He received his education at the University College of Medicine, Kansas City, graduating in 1898. He began practice in Chanute, in association with his father, after his discharge from military service in the Spanish American War. He was active in civic affairs and at different times served as a member of the city council, as finance commissioner, as coroner, and as a member of the school board. His tenure of office as county coroner extended over 40 years. He was also interested in medical society affairs, served as secretary of the Kansas State Board of Medical Registration and Examination, and for 20 years was surgeon for the Santa Fe Railway.

* * *

FRED CALHOUN, M.D.

Dr. Fred Calhoun, 81, died at his home in Sedan on June 8, following a long illness. He was an honorary member of the Chautauqua County Society, and had practiced in the county for 46 years. He was a graduate of Illinois Medical College, receiving his degree in 1903.

* * *

HAL ELLSWORTH MARSHALL, M.D.

Dr. H. E. Marshall, 55, who had practiced in Wichita for more than 25 years, died on June 15. He was an active member of the Sedgwick County Medical Society and had served as president of the group. He was graduated from the University of Kansas School of Medicine in 1925, and began practice in Wichita. His work was limited to ear, nose and throat practice. Dr. Marshall was a diplomate of the American Board of Otolaryngology and a member of the American Academy of Ophthalmology and Otolaryngology.

* * *

ELVEN O. BAKER, M.D.

Dr. E. O. Baker, 75, an active member of the Sedgwick County Society, died June 17 following a long illness. He was graduated from the Kansas City Homeopathic Medical College in 1899 and practiced in Seiling, Oklahoma, before coming to Kansas in 1904. He retired from his practice of internal medicine in Wichita early this year because of poor health.

Case Report From The University of Kansas Medical Center Clinical Pathological Conference

Pineal Teratoma

Edited by Glen R. Shepherd, M.D., and Mahlon H. Delp, M.D., from recordings of the conference participated in by the departments of medicine, pathology, pediatrics, neurology, radiology, and surgery (neurosurgery), and the junior and senior classes of medical students.

Case Presentation

J.T.P., a 4½-year-old white male, was well until four months prior to admission to KUMC at which time he had mumps followed one month later by chickenpox. He recovered uneventfully from these infections, but 10 days after the chickenpox had cleared the patient began intermittent vomiting and became lethargic. When the vomiting persisted and the patient became semi-conscious, he was admitted to the local hospital where he remained until 2½ weeks prior to his admission here. During his five weeks of hospitalization the patient was afebrile, had one convulsion and developed a tremor of the left hand. His sensorium cleared but he complained of occipital headaches, and two weeks after admission he had deviation of the eyes downward and inward. Repeated lumbar punctures revealed normal cells, sugar culture and protein.

Following his discharge from the local hospital, the patient's sensorium remained clear until two days prior to admission here. Intermittent vomiting continued. One week prior to admission, trembling of the hands reappeared. Sensorium became cloudy and speech thickened two days before admission here.

Following the mumps, the father noticed an increase in size of the boy's genitalia and two weeks before admission he noticed appearance of fine pubic hair.

Past history and family history were not contributory.

Examination on admission showed a temperature of 99.8° F., blood pressure of 138/90, pulse 120. The patient was a well-developed, well-nourished white male child who was lethargic but could be roused. Sensorium was clear but speech was unintelligible. Head circumference was 54 cm. Sutures were separated. McEwen's sign was positive. Pupils were equal but did not react to light. Bilateral nasal deviation of eyes and papilledema with retinal hemorrhages were present. The neck was questionably stiff. Penis and testes were large and fine pubic hair was present. There was generalized weakness and continuous choreiform tremor in all muscle groups, worse in the arms and accentuated by motion. All reflexes were absent except for knee jerks, which were equal and hypoactive.

Laboratory examinations revealed the urinalysis, complete blood count, blood chemistries and electrolytes to be normal. Spinal fluid: cell count 410 rbc.; 0 wbc., sugar 60.4 mgm. per cent; protein 16 mgm. per cent; smear and culture negative. Serology was negative.

In this hospital, the patient's condition remained essentially the same during his first six days. He then became worse with increase in severity of the tremor. X-ray therapy was started on the sixth hospital day. Three days later, the patient was having violent tremors and was essentially decerebrate. The patient was taken to surgery that day. Following surgery his condition was critical. His temperature rose to 106° F., he had severe respiratory difficulty and cyanosis and expired four hours after surgery on February 14, 1952.

Dr. Mahlon H. Delp (Chairman): Any questions of Dr. Fairchild?

Question: What was the basis for calling this tremor choreiform?

Dr. William P. Williamson (Neurosurgery): I would not call this a choreiform tremor. The tremor was hard to describe other than a vacillating tremor.

Question: Were any tests made on the urinary 17 ketosteroids?

Dr. Robert Fairchild (Pediatric Resident): Yes. His 17 ketosteroids were 4.56 mgm. in the 12-hour specimen with a total volume of 32 cc. That was repeated six days later and was 0.6 mgm. in a 24-hour specimen with a total volume of 200 cc.

Question: Was the respiratory difficulty dyspnea?

Dr. Delp: The nursing notes indicate a varying form of respiratory arrhythmia.

Question: Were any blood pressures recorded after surgery?

Dr. Fairchild: Blood pressures were up to 140/100 following surgery and terminally rose to 140/120. Before surgery, blood pressure was a maximum of 130/90. On the day before surgery it dropped to 115/75.

Dr. Delp: May we have the x-rays that you wish to show, Dr. Tice?

Dr. Galen Tice (Radiology): Because of the precocious sexual development, there is interest in the bone age. This shows four carpal bones in the wrist, which is normal for a child of 4½ years of age. You figure roughly one center of ossification, one carpal bone, for each year of age up to seven years. His bone age is considered normal for his chronological age.

The film of the skull (Figure 1), taken about five days before surgery, shows the classical picture of increased intercranial pressure with widening of the coronal and lambdoidal suture and widening of the longitudinal suture. I would think that this was a relatively rapid increase in pressure as there is no appreciable depression of the floor of the skull. There is more convolutional atrophy than one would expect of a child of this age. Calcification appears within the pineal body.

Ventriculograms were made a day or so later. Here calcification of the pineal body is obvious. The ventricles were dilated. The third ventricle appeared pushed forward.

Dr. Delp: There is one electrocardiographic tracing that has been taken. We would like to see that.

Dr. E. Grey Dimond (Medicine): Mr. Cooper, will you read the EKG.

Mr. Donald Cooper (Junior Medical Student): The rhythm is regular and the rate is approximately 140 with a regular sinus mechanism. The T waves are inverted in lead III and AVF. P waves are somewhat elevated and spiked in lead II. There is a mild elevation of the ST segment in leads III, AVR, AVL, and AVF. The T wave is inverted in lead I. Axis deviation seems to be normal with a plus 30 degrees. The diphasic lead across the chest is VI. This shows that the heart is pointing opposite to this or posteriorly. There is no other pathology than the spiking of the P wave in lead II and the possibility of ischemia due to the tachycardia as seen in the inverted T waves.

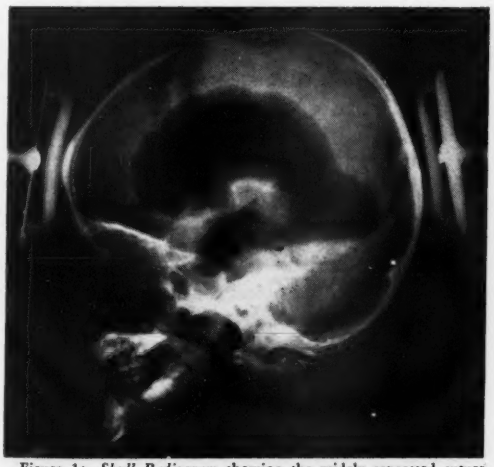

Figure 1: *Skull Radiogram* showing the widely separated suture lines, the extremely dilated lateral and third ventricles, and the tumor mass displacing anteriorly the third ventricle and occluding the posterior half of it.

Dr. Dimond: What is your conclusion now?

Mr. Cooper: Sinus tachycardia.

Differential Diagnosis

Dr. Delp: Mr. Youmans, may we have your discussion of this case?

Mr. Ronald A. Youmans (then Senior Medical Student): I would like to call a little attention to the sequence in development here. To begin with, four months prior to his admission to this hospital he had mumps. At that time his father noticed that his genitalia were large, indicating there may have been an abnormality at least four months prior to the process we are going to discuss.

Three months prior he had had chickenpox. His symptoms hadn't seemed to be too severe. There is the possibility of a postinfectious encephalitis from the chickenpox. He could, of course, have had a pre-existing tumor coincidentally showing signs at this time.

Two weeks prior to admission here, the pubic hair was noted. It is interesting that it had not been noted earlier—at the time of his mumps or chickenpox. One week prior to his admission here, the tremor reappeared, chiefly affecting the left side.

He was admitted here with lethargic but clear sensorium, and thick speech. Although the head circumference measured 54 cm., it usually is between 51 and 52, indicating a definite enlargement. The enlargement was verified by widening of the sutures shown in the x-ray.

McEwen's sign is not significant in a 4½-year-old. I think usually the sutures are not fused well enough to say the positive McEwen's sign is significant. His pupils were fixed and would not respond to light. He did have nasal deviation. The nasal deviation, of course, suggests the possibility of a sixth nerve injury somewhere along the line. He had plus four funduscopy which would go along with a diagnosis of hydrocephalus of some sort or at least prolonged high intracranial pressure.

The choreiform tremor now was noted over all muscle groups. Six days before he died, he became worse and the tremor worse. He was taken to surgery and soon after operation a spiking fever and respiratory difficulty began.

In the differential diagnosis of precocious puberty, essentially three types are considered. In the rare idiopathic type, a youngster for no apparent reason seems to mature between ages four to six years. Girls occasionally have been reported to have babies at that age. Why they develop precociously is not known. Aside from the age difference, they do

develop normally and very frequently live a usual life otherwise. Though the menses may start at the ages of four to five in the female, the menopause appears at the usual age. Males show a lack of libido in spite of the apparent secondary sex characteristics. They are otherwise normal individuals who for some unknown reason have developed sexuality early.

The second type stems from a cerebral lesion, primarily a pineal or hypothalamic lesion. With that there is a possibility of a third ventricle teratoma-like tumor.

The third group to consider in precocious puberty does not apply here because it is what is called the abdominal type. This may be due to ovarian tumors, chorionepithelioma, teratoma, granulosa cell tumor and such in females. In males it may be from a testicular neoplasm. In either sex, secondary sex characteristics may arise from adrenocortical tumors, either as distinct hyperplasia or actual neoplasm.

I think that limits us to the differential diagnosis between a pineal body tumor of undetermined type and a hypothalamic lesion. These are extremely difficult to differentiate clinically. This patient had evidence of hydrocephalus of several months duration.

Bailey makes a flat statement that when an infant has an internal hydrocephalus, inability to elevate the eyes and precocious puberty, the triad is diagnostic of pineal tumor. I feel that is probably what we have in this instance. The vibrating tremor described today is more likely due to pressure on the superior peduncle of the cerebellum with a cerebellar tract irritation causing the tremor.

Four hours after surgery, his temperature rose. He had respiratory difficulty and cyanosis. The temperature elevation in only four hours postoperatively is not compatible with an infectious state. The idea that hyperthermia is controlled by a specific spot in the brain is not well established. It seems that sudden pressure on the anterior portion of the brain stem will produce hyperthermia.

I think this patient probably had a pineal tumor of unknown specific cell type. I don't think you can describe it any better than just simply pinealoma. The respiratory failure was possibly due to hemorrhage into the fourth ventricle.

Dr. Herbert Miller (Pediatrics): As the history is given in this protocol, this child couldn't possibly have encephalitis due to chickenpox because the symptom came on 10 days after chickenpox had cleared. At least 9 or 10 days are required for chickenpox to clear, so that would mean that the encephalitis would have had to come on 20 days after the onset of the chickenpox, which I think is out of the realm of possibility.

It is quite obvious that this child had some endocrine disturbance.

Clinical Discussion

Dr. Delp: I would like to have some comments with regard to the ketosteroids reported here. I think you ordered them, Dr. Bolinger.

Dr. Bolinger (Medicine): I don't think you can place too much credence in the ketosteroid values because of their wide variation in this case. The most common error in the determination of steroids is in the urine collection as a rule. We have few other measurements of urine volumes, and since the usual error is for the urine to be lost, I think the highest value would be the one to be accepted. As a value of four was found in 24 hours, it was the highest value and was probably the correct one. It is abnormal for that age. It does not fall into the range we usually think of or find in an adrenal tumor, however.

Dr. Delp: Does it suggest a pineal tumor to you?

Dr. Bolinger: It would suggest one of two things, either a pineal tumor or the so-called idiopathic type of precocious puberty which Mr. Youmans described. It does not suggest an adrenal lesion clinically because the adrenal type of precocity is associated usually with atrophic or small testes. There is no enlargement.

Dr. Delp: Is there any devious reasoning by which you could make connection between the signs of early puberty and the mumps which he apparently had some month or six weeks before?

Dr. Bolinger: Well; I tried to find some reference to precocious puberty and encephalitis but I was unable to find anything very concrete. I think it is conceivable that one could have some lesion in the diencephalon, but I think the time interval is too short to produce precocious puberty for that reason.

Dr. William Williamson (Neurosurgery): We didn't have much doubt but that the child had a brain tumor based on the fact that he had progressive headaches, vomiting, stupor, papilledema, and neurologic deficit plus exceedingly wide separated sutures in which you could stick your fingers. Those are the widest separated sutures, by the way, that I have ever seen in a live person. As to localizing signs, he had the classical picture of a tumor in the region of the pineal gland affecting the superior colliculi, paralysis with upward gaze, fixed pupils that didn't respond to light, and bilateral sixth nerve weakness.

There has been discussion about his tremor. I don't think there is such a thing as vibrating tremor. That was my term to describe it. That is how it appeared. It was a tremor that wasn't purely cerebellar or purely pyramidal tract, nor purely from weakness.

This type of tremor meant very severe hydrocephalus with involvement produced by the hydrocephalus of the pyramidal system, the extrapyramidal system, and the pontocerebellar system. It was associated with both rest and intentional movement. He was actually vibrating all over in sort of a decerebrate state.

All this indicated a tumor in the region of the pineal gland. This case was an emergency. If anything were to be done, it had to be done quickly. We didn't feel like going through the endocrine studies at that time. We felt that we should verify by ventriculography the exact location of the lesion and the fact that it was neoplasm despite the clinical evidence.

The ventriculogram does show a hydrocephalus with a block of the posterior part of the third ventricle. I think this particular film outlines the tumor mass projecting into the posterior part of the third ventricle.

We were aware of the fact that in the best of hands the mortality rate in attempted total removal of pineal tumors is around 80 per cent. In some hands it has been as high as 90 per cent. The consensus among neurosurgeons now is that it is best to attempt some sort of temporary decompression measure, including x-ray irradiation of the tumor. We found several reports in the literature of pineal tumors treated with decompression and x-ray therapy that were still alive at 5, 10, 12, and one at 14 years. I found only five cases reported of total removal that survived and were worthwhile. Out of 53 cases of pure pinealomas reported, 52 were dead.

We elected to put a catheter in the ventricle to relieve the hydrocephalus, and then give x-ray therapy. In spite of the catheter in the ventricle which should have relieved the pressure, no improvement appeared. It was then apparent that the gradual downhill course was from direct compression of the brain stem and superior colliculi or direct invasion by the tumor. A total of three or four x-ray treatments was given. That isn't an adequate trial of x-ray therapy.

Temporizing measures failing, surgical removal of the tumor was performed. There was no unusual blood loss or any anoxia during surgery. He really did surprisingly well and looked well a couple or three hours after surgery. I don't know exactly what he died of, but certainly it was not unexpected.

Dr. Delp: Do you have any questions about this tremor, Dr. Steegmann?

Dr. Theodore Steegmann (Neurology): I would agree that this tremor was probably due to pressure. One would have to take the localization of it away from the superior brain stem. Such tremors frequently are seen arising from aberrent cerebellar tracts going to the red nucleus. Of course, atypical tremors appear even in parkinsonism.

Dr. Tice: Will Dr. Williamson comment on the calcification of the pineal or shall we change the diagnosis?

Dr. Williamson: The fact that it was way off to one side, I felt meant definitely that it was a tumor. The radiologists said this could be a pineal tumor if it was calcified at age four. We rarely see calcification in a normal pineal in a child.

Pathology Report

Dr. Chauncey G. Bly (Pathology): The child grossly was well muscled and normal externally except for the operative incisions. The heart weighed 120 grams as compared with 90 for this age and body size. There was noted fine pubic hair and hair on the upper lip and enlarged genitalia. The testes were about five times the normal size. The adrenals were about 1½ times normal size but were grossly yellow, which is unusual for a child's adrenal indicating excess steroids for that age and approaching the normal adult picture. The prostate was about twice the normal diameter. The thymus had about one-sixth its normal weight with severe atrophy, confirmed by microscopic examination.

The ventricles of the brain were dilated. Periventricular fresh hemorrhages appeared scattered about beneath the ependyma. There were a few scattered focal areas of subarachnoid hemorrhage. The extreme hyperemia and some of the perivascular hemorrhages seen in the cerebrum were partially attributed to the ligation of the venous drainage.

The tumor itself, secured from Dr. Boley in surgical pathology, was smoothly encapsulated and grossly there had been no invasion of the surround-

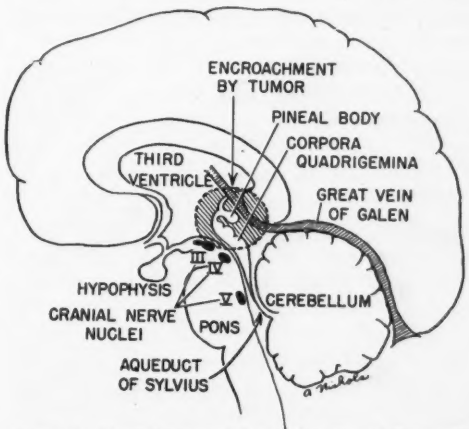

Figure 2: *Pineal Tumor and Surrounding Central Nervous Tissue.* The shaded area in the center of the diagram depicts the approximate location of the tumor resulting in compression and displacement of the great vein of Galen and the splenium of the corpus callosum, the corpora quadrigemina, the aqueduct of Sylvius with occlusion and hydrocephalus, the tectum including the third and fourth cranial nuclei, the superior cerebellar peduncles, and the hypothalamus, together with rupture of the habenular and posterior commisures.

ing brain tissues. Slides of both the tumor and the brain show microscopically no invasion in the areas we have sectioned.

This tumor is a teratoma of the pineal gland. It is not a common tumor. You won't see them in your office practice. Dr. Wartman reported at Wichita recently a series of 1,050 tumors of children, both benign and malignant. There were 25 teratomas in that group. Most of them were in the glands, especially in the ovary. There was only one in the intracranial region and that one coincidentally happened to be in the pineal gland. Most of them occur in the midline regions of the body where there may have been defective apposition of growing embryonic structures or defective division, or deficiency of primary or secondary "organizer substance." The presence of a teratoma may be detected in any age group. Only male children younger than ages 10 to 12 years appear to show the endocrine effects of pineal tumors.

Experimental results in animals are conflicting and inconsistent, but there has been reproducible work in cats and rats showing premature sexual development in male animals after removal of the pineal gland. Actually I don't believe we know much more about the function of the pineal gland than Galen did in his time.

Our sections show the various tissues occurring in this particular teratoma. These includes several areas of epidermis in the middle of the tumor, consisting of subcutaneous alveolar tissue, hair shafts, maturely pigmented cells, epidermis with sebaceous glands, and an epidermoid cyst.

Also visible are mixtures of osteoid and bony tissues, hyaline cartilage, immature connective tissue stroma, various cystic cavities and blood vessels running throughout the tumor. The only structures even faintly resembling the gastro-intestinal tract in this particular tumor are several acinar structures lined by goblet cells. Not all the structures formed are mature or etiologically recognizable. Islands of primitive mesenchymal and possibly choroidal and ependymal cells are seen. The radiologically-visible calcifications in the tumor were actually scattered islands of calcifying bone.

A section of pituitary shows islands of basophilic cell predominance which have been reported to be related to increased production of gonadotropin—this would fit in the picture of the present case.

In this microscopic section of the testis, one sees that it is not normal infantile testis at all. It isn't normal adult testis either, of course, but there are obviously large islands of interstitial cells of Leydig showing tremendous proliferation. The seminiferous tubules show greatly increased activity with several mitotic figures visible. No mature sperm or spermatids were found, but there is definite spermatogenesis in the testis which is far beyond the normal for a child of this age.

A section through the adrenals shows it to be stuffed with lipoid-containing material. With fat stains the amount and distribution of lipoids are clearly more adult than infantile.

A section through the prostate shows enlarged muscular and glandular elements. Both the primary infantile types of glands and the adult type of tall columnar epithelium are seen. So this also fits in with the elevated 17-ketosteroids; nine mgm. per 24 hours compared to one mgm. normal for this age.

The pathogenesis of the endocrinological disturbance is unknown, although it appears to be related to tumors in the posterior portion of the third ventricle with compression of the hypothalamus. Neither general dilatation of the third ventricle nor

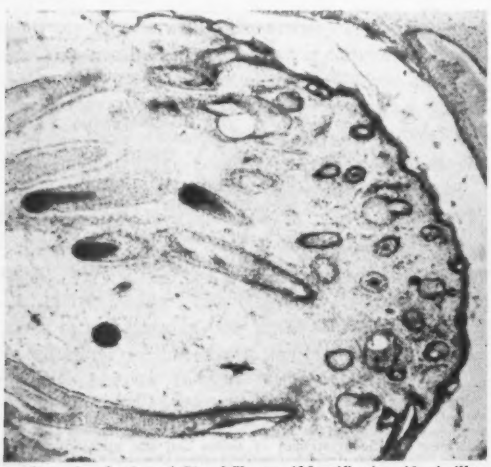

Figure 3: *Section of Pineal Tumor* (Magnification 40 x) illustrates as one structure in the center of the tumor, a large papilla with maturely differentiated epidermis and adrenal with hair follicles, shafts, and pigmentation.

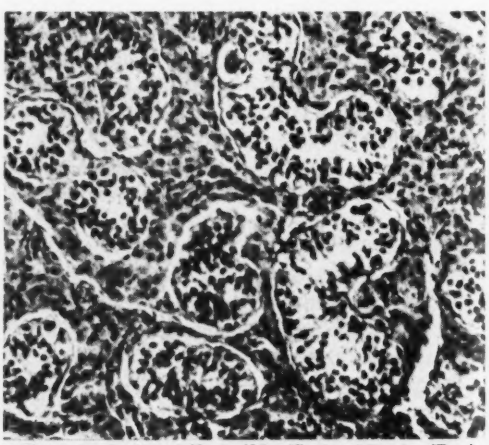

Figure 4: *Section of Testis* (Magnification 160 x). The interstitial cells of Leydig, which make up over half of the mass of tissue in these enlarged testes, are seen in broad sheets of cells surrounding the seminiferous tubules which show increased activity.

the cysts, which are not uncommon in the anterior portion of the third ventricle, produce this picture. Any of the various types of tumors (if one believes there are distinct types) of the pineal gland may produce the picture. We might postulate then that pressure on the hypothalamus (with or without curtailed elaboration of an hypothetical pineal hormone alleged to be capable of inhibiting sexual maturation in male children), results in stimulation (through the hypothalamic-hypophyseal tracts or the hypothetical hormone) of the pituitary basophilic cells. This would result in: increased stimulation of the adrenals and Leydig (interstitial) cells; increased output of 17-ketosteroids; hypertrophy of skeletal and heart muscle; precocious maturation of the seminiferous tubules, prostate, and genitalia; hirsutism; and thymic atrophy.

Early acute bronchopneumonia and interstitial pneumonitis probably contributed to the demise of the patient, who was already in the moribund state from cerebral damage before operation was permitted.

Summary

Pathological diagnoses:

I. Primary changes:
- Fresh scalp incision, skull burr-holes and flap, right occipito-parietal region.
- Surgical absence of pineal (tumor), and hemostasis clips on and about great cerebral vein of Galen.
- Flattened corpora quadrigemina and cerebellar peduncles.
- Dilatation of third and both lateral ventricles—hydrocephalus.
- Thinning and atrophy of floor of third ventricle and posterior commisure.
- Disseminated focal subependymal and paraventricular fresh hemorrhage and hyperemia with sanguinous cerebrospinal fluid.
- Intracortical hemorrhages, fresh, small, of right parietal lobe.
- Small subcortical hemorrhages, left parietal lobe.
- Focal acute bronchopneumonia, and interstitial pneumonitis.
- Focal pulmonary hemorrhages, edema and atelectasis.

II. Secondary changes: (precocious sexual changes)
- Pituitary basophilia
- Hyperplasia of interstitial cells of Leydig and of testicular tubular cells with early stages of spermatogenesis.
- Hyperplasia of prostate, hypertrophy of penis, scrotum, testes.
- Faint hirsutism of lip and pubic region.
- Hyperplasia of adrenals (adult type).
- Severe atrophy of thymus.

Bibliography

1. Selye; Textbook of Endocrinology; Acta Endocrinologica, 2nd ed., 1949, pp. 593-599.
2. Gerstley; et al., Teratoma of the Pineal Body, J. Pediatrics, 17:512, 1940.
3. McGovern; Tumors of the Epiphysis Cerebri, J. Path. and Bact., 61:1, 1949.
4. Walton; Teratomas of the Pineal Region, J. Path. and Bact., 61:11, 1949.
5. Russell; Pinealoma-Relationship to Teratoma, J. Path. and Bact., 56:145, 1944.
6. Ehni; Pineal Teratoma; J. Neurosurgery, 3:86, 1946.
7. Russell, Sachs; Pinealoma (Review 58 cases). Arch. Path., 35:869, 1943.

ACTIVITIES OF MEMBERS

Dr. Frank James, Galena, has been named acting health officer of Cherokee County, replacing Dr. P. R. Perdue, Columbus, who was granted a leave of absence.

* * *

The Arkansas City Medical and Surgical Clinic announces that Dr. W. W. Kridelbaugh is now a member of its staff. Dr. Kridelbaugh, a diplomate of the American Board of Surgery, comes to Kansas from the University of Iowa, where he was a member of the faculty in the surgical department.

* * *

Dr. Hoyt C. Blaylock and Dr. Frederick H. Chard, Wichita, recently became diplomates of the American Board of Dermatology and Syphilology.

* * *

Dr. L. M. Hinshaw, who has practiced in Bennington for 48 years, was guest of honor at a community celebration on June 8.

* * *

Dr. Robert R. Luttrell, Topeka, has been named director of the Shawnee Guidance Center.

* * *

Dr. David W. Robinson of the University of Kansas Medical Center is the author of a paper, "Harelip and Cleft Palate," which was abstracted in the June issue of *Digest of Ophthalmology and Otolaryngology*. The paper was originally published in the *Journal of the Kansas Medical Society*.

* * *

Dr. John W. Unruh has left his practice in Coffeyville to do postgraduate work in Portland, Maine, this summer. Dr. J. J. McDonald, formerly of Brownsville, Texas, and Lawton, Oklahoma, is taking over Dr. Unruh's eye, ear, nose and throat practice in Coffeyville.

* * *

Dr. Austin J. Adams, Wichita, was one of the speakers at the Seventh Annual Minister-Physician conference held at Wesley Hospital, Wichita, recently.

* * *

Dr. D. V. Conwell, Wichita, presented a paper, "Treatment of Mental Disorders in Geriatric Patients," at the annual meeting of the American

Geriatrics Society in Chicago recently. Dr. C. J. Kurth, also of Wichita, collaborated with Dr. Conwell in writing the paper.

* * *

Dr. Lucius Eckles, Topeka, was speaker at a meeting of the Kiwanis Club in Eskridge last month.

* * *

Dr. Howard H. Dunham, associate professor of radiology at the University of Kansas School of Medicine, is moving to Emporia this month to become radiologist at St. Mary's and Newman Memorial Hospitals. He succeeds Dr. Joseph Wepfer, who left the hospitals in Emporia to enter a partnership practice in Wisconsin.

* * *

Dr. K. M. Rottluff, Bonner Springs, announced recently that his practice would be cared for during his vacation by Dr. L. K. May and Dr. E. W. Mitts, who are beginning practice in that community. Both new physicians are graduates of the University of Kansas School of Medicine who have completed residencies at St. Margaret's Hospital, Kansas City.

* * *

Dr. William E. Brownlee, Hutchinson, recently enrolled at the Cook County Graduate School of Medicine, Chicago, for postgraduate courses.

* * *

Dr. Rodney G. Carter, Independence, was guest speaker at a recent meeting of the R. N. Club in that city. His subject was "Electrochemicals in Dysfunctions of the Body."

* * *

Dr. J. T. Swanson resigned as radiologist at Mercy Hospital, Independence, on July 1. His future plans have not been announced.

* * *

Dr. Franklin D. Murphy, Lawrence, was keynote speaker at the first regional institute for medical clinic managers, held at Wichita University late in May. Dr. Fred J. McEwen, Wichita, also took part in the program.

* * *

Dr. E. Russell Jacka, formerly of Halstead, and Dr. David R. Wall are now associated in practice in Wichita. Their work is confined to office psychiatry.

* * *

The Scott City Clinic announces that Dr. E. Cannon Kane is now a member of its staff. Dr. Kane served his preceptorship under Dr. H. Preston Palmer at the clinic a year ago.

* * *

Dr. Farris D. Evans, Wichita, was elected surgeon for the state group of the Veterans of Foreign Wars at a convention held in Hutchinson last month.

* * *

Dr. E. Burke Scagnelli, who has practiced in Jetmore since 1946, has moved to Dodge City and is now associated with the Southwest Clinic. Dr. Girard Veenschoten, who has just completed a general practice residency in Morristown, New Jersey, is beginning practice in Jetmore this month.

* * *

Dr. Herbert A. Wenner, of the University of Kansas Medical Center, spoke on "The Promise of Research" at a meeting of the eastern Kansas district of the National Foundation for Infantile Paralysis held in Kansas City last month.

* * *

Dr. R. T. Nichols, Hiawatha, who completed 50 years of active practice last month, was presented an honorary certificate by Northwestern University, Chicago, at a ceremony held at the university recently.

* * *

Dr. Jack Weaver, Wichita, was guest speaker at a meeting of the Sedgwick County Medical Assistants' Society on June 18.

* * *

Dr. E. E. Brooks, Burden, was honored at a community picnic on June 22. A similar honorary celebration was held last year, and the town now plans to make it an annual event.

* * *

Dr. Lynn Hartman, Arkansas City, director of the Cowley County Health Department, spoke on community responsibility in health matters before the Arkansas City Kiwanis Club on June 18.

* * *

Dr. Charles F. Menninger, founder of the Menninger Clinic and chairman of the board of trustees of the Menninger Foundation, Topeka, observed his 90th birthday on July 11. He began practice in 1906, specializing in internal medicine, and organized the clinic as a father and son partnership in 1919. He remains in good health and continues to be active in foundation affairs.

COUNTY SOCIETIES

Officers of the Sedgwick County Medical Society for the year beginning in January, 1953, were elected at a meeting held in Wichita on May 6. The following were chosen: president, Dr. H. C. Clark; vice president, Dr. L. P. Warren; secretary, Dr. Jack Tiller; treasurer, Dr. H. L. Low; censor, Dr. A. L. Ashmore; members of board of directors for three-year terms, Dr. E. S. Brinton, Dr. G. E. Cowles and Dr. B. P. Meeker.

* * *

A meeting of the Sumner County Society was held at Harry's Cafe, Wellington, recently. Speaker

of the evening was Dr. Henry Tihen, Wichita, whose subject was "The Doctor's Role in Government."

* * *

Members of the Riley County Society were hosts to the Golden Belt Medical Society at the Manhattan Country Club on July 10.

* * *

The Rush-Ness Society met at the Rush County Memorial Hospital at La Crosse on June 9. Dr. Lloyd Reynolds, Hays, was guest speaker on the subject of gastric and duodenal lesions. A buffet luncheon was served at the close of the meeting.

BLUE SHIELD

Age Problem Looms

Advancing age and increasing utilization of hospital and medical care go hand in hand. This fact has tremendous significance for the future of Blue Cross-Blue Shield.

Here is the problem stated in its broadest terms:

1. The older members, beginning around the age of 55, show a rapidly increasing rate of use of hospital and medical care. Members from 55 to 64 use nearly twice the number of hospital days as those from 35 to 44. Each higher age bracket shows a correspondingly higher use.

2. There is a tendency for more older people proportionately to join and stay with the plan than younger people.

The results of these tendencies lead to an age distribution of members which is more heavily loaded with the higher age brackets than the age distribution of the population as a whole.

This accumulation of older members is not nearly so pronounced in employee group memberships as in community membership (those who join on individual basis), since employee groups have a more balanced age distribution. It should be noted that the higher utilization of community members is not borne by employee groups. Thus the latter enjoy relatively lower dues.

Unless something can be done to correct the age distribution, the incidence of hospital days and medical usage of community members will continue in a constantly rising curve. For example, current estimates indicate that utilization will be 21 per cent higher in six years.

A further aggravation of the problem results from constantly rising hospital costs which have been going up steadily since Blue Cross in Kansas began operation. The combination of increasing use and higher costs always brings about increasing rates to members. This in turn accentuates the trend of attracting the more frequent users of hospital service, the older members, and losing younger ones.

Long Range Planning

The Blue Shield financial position at the present time is encouraging. Blue Shield reserves are satisfactory and the rate structure appears to be adequate for producing modest increases in reserves during 1952 and perhaps in 1953. A somewhat smaller addition to Blue Cross reserves is expected in 1952 than was originally planned for in the rate increase of August, 1951. It is likely that Blue Cross will have to start dipping into its reserves in 1953. However, it should be emphasized that both Blue Cross and Blue Shield are in sound financial position at present which means that both plans have time for long range planning to meet the problems that lie ahead.

But this long range planning must begin to take shape now and it definitely involves the understanding and cooperation of the medical profession. Here are some of the possible courses which must be weighed and discussed with all concerned—the doctors, the hospitals and the members:

1. More Emphasis on Economy—Reduction of use through a better understanding by doctors, hospitals and members could ameliorate the trend toward poor age distribution to a considerable extent.

2. Tighter Enrollment Regulations—The method of enrolling members undoubtedly has a bearing on the utilization curve. Revised enrollment regulations may help to create a better spread of risk and a better distribution of ages in the membership.

3. Contractual Controls—By this is meant the introduction of certain limitations in the member's contract which will discourage hospital usage for minor conditions or for diagnostic work-ups which may be taken care of in visits to doctors' offices. A deductible feature may be the best way of achieving this deterrent.

Cooperation Urged

These and other possible solutions are being intensively studied by Kansas Blue Cross-Blue Shield. The medical profession will be kept informed and will be asked to participate actively in the development of future courses of action. The cooperation of the profession is urgently needed today and tomorrow. Your individual counsel and opinions will be appreciated.

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Senior Thesis from the University of Kansas Medical School*

The Coxsackie Viruses**

Robert G. Wood, M.D.

Kansas City, Kansas

In 1948 Dalldorf and Sickles reported the isolation of an unidentified filterable agent from the feces of two children with paralysis. The agent, since proven to be a virus, is peculiar in that in the laboratory it is pathogenic only for suckling mice and hamsters. More recently, however, oral or parenteral inoculation in the cynomolgus monkey and chimpanzee has been reported to produce an "inapparent infection with fever after four to nine days." The virus has been recovered from the pharyngeal secretions and feces of these animals, and both the monkey and chimpanzee have specific neutralizing antibodies in the serum for periods up to six months. The viruses have also been recovered from sewage, flies, and throat swabs of human beings.

Twenty-eight strains have been isolated to date. These are divided into two groups, depending upon the lesions produced in suckling mice, and are called the Coxsackie viruses.

Group A contains 20 strains with at least seven serologically distinct sub-groups. Shortly after inoculation these strains produce rapidly progressive flaccid paralysis of all skeletal muscles. Death usually follows in less than 48 hours. Microscopically, skeletal muscles show diffuse and extreme degeneration followed by round cell infiltration and proliferation of sarcolemma nuclei. However, these lesions are not pathognomonic. The myocardium is not involved and central nervous system lesions are rare, although the virus is present in the brain.

The eight strains in Group B are serologically related. They are characterized by producing large areas of cystic degeneration and necrosis in the brain. The muscular lesions they produce in suckling mice are less severe than those produced by the Group A strains.

Laboratory cultures are maintained by repeated inoculations in suckling mice or hamsters. Macerated brain tissue has been found to be one of the best inocula. Slater and Syverton have shown that after 16 passages the organism is still lethal for 58 per cent of the mice inoculated. Passive immunity is obtained through the mother's milk or by inoculation of the mother during gestation. Immunity to one strain does not confer immunity to the other strains. Melnick has shown that the virus can be neutralized by homologous immune serum but not by hyperimmune serum from poliomyelitis, mouse encephalitis, mumps, herpes simplex, lymphocytic choriomeningitis, encephalomyocarditis, louping ill, Venezuelan equine encephalitis, or New Castle disease.

The organism is resistant to ether, penicillin, streptomycin, chloromycetin, heating for 30 minutes in water at 55 degrees centigrade, or freezing in water for eight months at minus 70 degrees centigrade. It is inactivated in water heated to 60 degrees centigrade for 30 minutes.

Serum reacting to Group A strains is common among adults of the New England states and pooled adult serum from that region effectively neutralizes A strains of Coxsackie viruses.

Early articles frequently left the reader with the impression that the association of the various syndromes and the Coxsackie viruses was clear-cut, but it was not until 1950 that the fourth Koch postulate was fulfilled. At that time Shaw, Melnick, and Curnen reported the infection of six laboratory workers with Coxsackie viruses, all six cases associated with breaks in technique of handling laboratory specimens.

At the present time, Coxsackie viruses are being considered as the probable etiological agent for at least three clinical syndromes. These are all characterized by an abrupt onset of symptoms, the most prominent of which are headache and fever. The duration of symptoms is usually less than one week, frequently lasting less than 24 hours. All three syndromes are most commonly seen as summer epidemics with a predilection for children and young adults, although older age groups are also occasionally affected. Coxsackie viruses have been isolated from stool specimens of patients in the acute phase of disease during epidemics of each of the three syndromes. Those patients with positive fecal tests have also been shown to have a rising antibody titer for the particular strain of Coxsackie virus isolated.

Coxsackie viruses were first associated with epidemics of poliomyelitis, and several of the more recent writers have commented upon the close relationship of these two viruses. However, immunity to one does not confer immunity to the other, and at the present time they are considered to present two separate clinical syndromes. That caused by the Coxsackie viruses has been termed "aseptic menin-

*This is one of 11 senior theses selected for publication by the Editorial Board from a group of 15 judged the best by the faculty of the University of Kansas School of Medicine.

**Thesis written while the author was a senior student at the University of Kansas School of Medicine. Dr. Wood is now serving his internship at Providence Hospital, Kansas City, Kansas.

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*Barowsky, H.: A Roentgenographic Evaluation of the Common Measures Employed in the Treatment of Colonic Stasis, Scientific Exhibit, National Gastroenterological Association, Chicago, Sept. 17-22, 1951.

RESEARCH IN THE SERVICE OF MEDICINE SEARLE

gitis," but is is also known as "non-paralytic poliomyelitis," "acute meningoencephalitis," "three day fever," and "summer grippe." Curnen, Shaw, and Melnick have shown that epidemics of aseptic meningitis occur earlier in the summer than those of acute poliomyelitis. The former reaches a peak incidence during July and early August while the latter is most prevalent during the last part of August and September. The incubation period averages about five days.

The disease is characterized by a sudden onset of headache, fever, and nausea. Within 24 hours signs of meningeal irritation become prominent. Vomiting and abdominal pain occur in about 50 per cent of the cases. Other symptoms seen less frequently include neck pain, malaise, myalgia, backache, and muscular weakness.

The temperature is usually about 100° F. Physical examination usually shows the patient to have a stiff neck and back. Kernig's sign is sometimes positive, but deep tendon reflexes are normal and Babinski's sign is absent. Some patients also show a transient weakness of the legs and thighs. Antibiotics have proven ineffective, but the infection is self-limited. The acute phase lasts 18 to 36 hours and the patient is usually symptom-free in four to six days. Examination of the cerebrospinal fluid shows normal manometrics, protein, and sugar with pleocytosis; the maximum number of cells varies from 25 to 125. The blood picture is within normal limits except for the white cell count which may vary from 3,000 to 13,000 cells with a normal differential count.

Blood tests three to four weeks after the onset of symptoms show a high titer of neutralizing antibodies for the virus isolated from acute phase fecal specimens.

The second syndrome is herpangina. This has been a clinical entity since 1924 when Zahorsky first proposed the term for "a specific febrile disease characterized by the appearance of minute papules, vesicles and ulcers in the throat." Children under the age of 10 years are most commonly infected. The disease occurs in epidemics marked by an acute onset of fever, anorexia, dysphagia, and sore throat. The symptoms last for one to four days. Positive physical findings are limited to lesions on the tonsillar pillars and soft palate. They start as grayish-white papulo-vesicular spots one to two millimeters in diameter. Each lesion is surrounded by an erythematous areola. Rupture of the vesicle produces a shallow gray ulcer. A maximum of four to twelve vesicles is formed.

The disease is self-limited and shows a high incidence among siblings. Blood and cerebrospinal fluid findings are within normal limits. Treatment is symptomatic. Antibiotics have proven ineffective in lessening the severity of symptoms or shortening the course of the disease.

This disease is often confused with acute herpetic gingivostomatitis, but scrapings from the lesions do not produce kerato-conjunctivitis in rabbits, as do those from herpetic pharyngeal lesions. Herpetic infections seldom occur in epidemic form and are found on the buccal mucosa. They are painful while those of herpangina have been described as being painless.

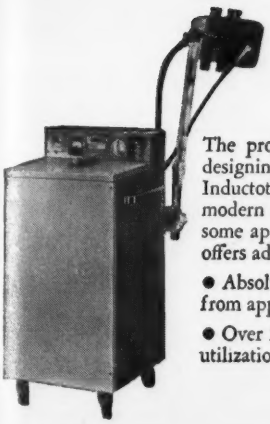
Pleurodynia is the third clinical syndrome in which the Coxsackie viruses are implicated. This condition is also known as "epidemic myalgia," "Bornholm Disease," and "devil's grip."

This disease is also one that occurs as a summer epidemic of children and young adults. According to MacDonald the symptoms that occur most commonly, listed in the order of decreasing frequency are: fever, pain, malaise, headache, constipation, nausea, and vomiting.

The pain, described as "burning," "knife-like," occurs in paroxysms and may be located in the chest, abdomen, or back. It is aggravated by deep breathing or exercise. In the 1937 Cincinnati epidemic of 70 reported cases, more than 50 per cent of the children had abdominal pain only. It was most frequently epigastric in location. However, Butsch and Harberson report a series of 50 cases of acute onset of pain similar to that of acute appendicitis. The epidemic occurred among children and young adults. After doing several appendectomies and finding no pathology, the cases were re-evaluated. They found that the patients had conjunctivitis, the soft palate was "entirely covered with a raised plaque of edematous mucous membrane of a salmon pink color." The pain started to the right of the umbilicus, in the region of McBurney's point or below the costal border in the right midclavicular line. It did not shift in location. True muscle spasm was absent and tenderness was commonly found along the distribution of the 10th intercostal nerve. Leukocytosis was absent and the differential count was normal. They concluded that their problem was one of acute virus infection with nerve root involvement. The etiological agent was not demonstrated.

The paroxysms of pain subside after 12 to 24 hours. However, recurrence of pain is common, usually on the third or fourth day. Some children have three or more recurrences, and Nichamin is of the opinion that "the infected person appears to have an inherited susceptibility to repeated attacks of the disease, which are precipitated by various excitant factors."

Howard, et al., report symptoms of meningoencephalitis during the Brooklyn epidemic of 1942. They had eight patients under the age of two years



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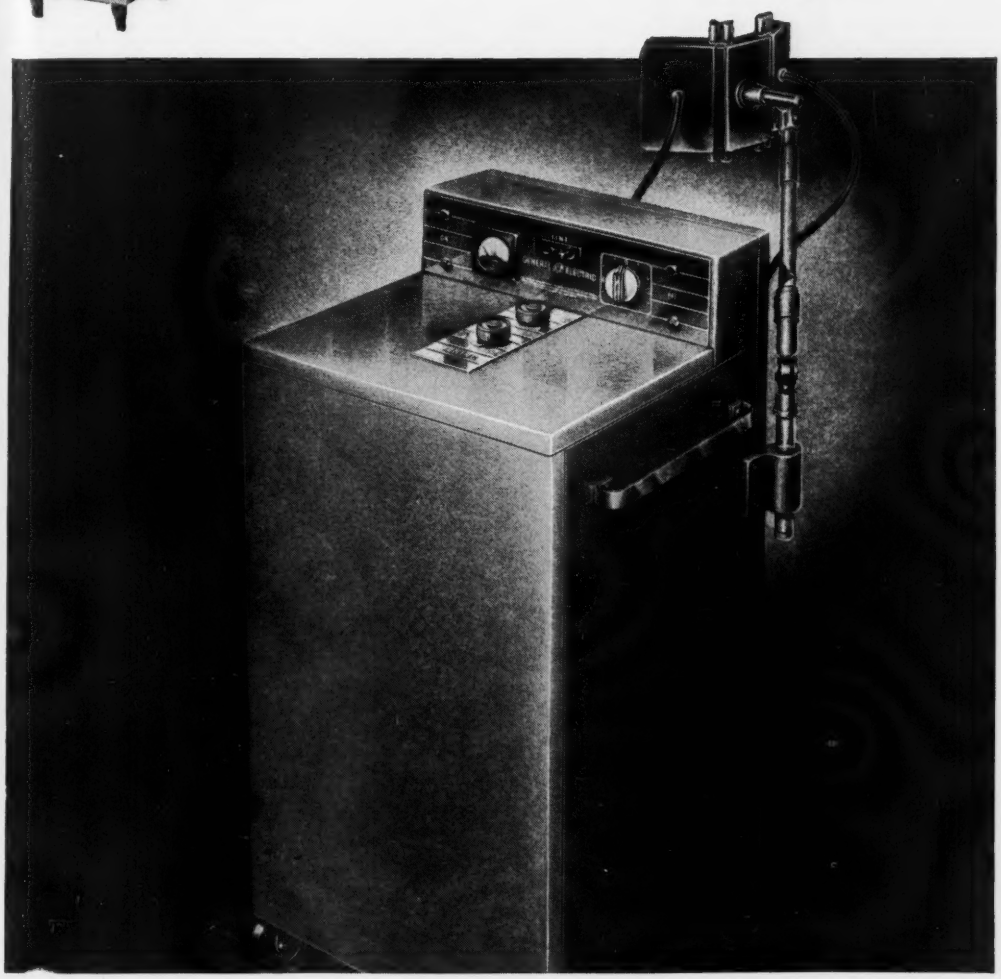

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and all eight had convulsions. None of the patients over the age of two years had a convulsion, but headache, apathy, vertigo, and photophobia occurred in five cases.

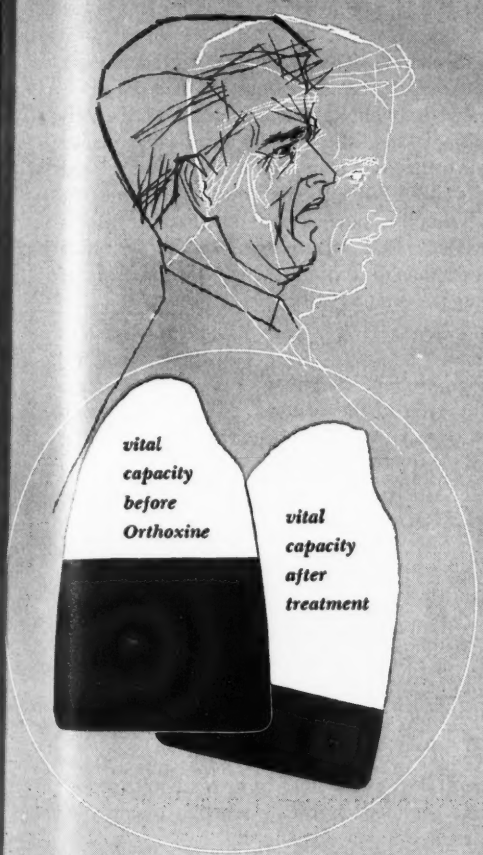
Biopsy of intercostal muscles in the acute phase has failed to reveal any pathology. The virus could not be demonstrated in the tissue so obtained.

Summary

Twenty-eight strains of Coxsackie virus have been isolated and their classification is described. They are peculiar in that the only laboratory animals for which they are pathogenic are suckling mice and hamsters. Three clinical syndromes have been discussed in which these viruses are thought to be the etiological agent. All three diseases are characterized by the fact that they occur as summer epidemics of children and young adults. They have a sudden onset with fever and headache or pain as prominent symptoms. The duration is short and the infections are self-limited. Coxsackie viruses have been isolated from stool specimens in the acute phase of all three, and a rise in the titer of neutralizing antibodies for the isolated organism occurs.

Bibliography

1. Beeson, P. B.: Epidemic Pleurodynia, in Harrison, T. R.: Principles of Internal Medicine, Ed 1, Philadelphia, The Blakiston Company, 1950, pp. 34, 1172.
2. Bell, J. A., Beck, M. D., and Heubner, R. J.: Epidemiological Studies of Q Fever in Southern California, J.A.M.A. 142: 867-872 (March 25) 1950.
3. Black, W. C.: The Etiology of Acute Infectious Gingivostomatitis (Vincent's Stomatitis), J. Ped. 20: 145-160 (February) 1942.
4. Breese, Jr., B. B.: Aphthous Pharyngitis, Am. J. Dis. Child. 61: 669-674 (April) 1941.
5. Butsch, W. L., and Harberson, J. C.: Acute Virus Infection With Nerve Root Involvement Simulating Appendicitis, J.A.M.A. 123: 405-407 (16 October) 1943.
6. Casal, J., Olitsky, P. K., and Murphy, L. C.: Hemagglutination and Complement Fixation With Type I and II Albany Strains of Coxsackie Virus, Proc. Soc. Exper. Biol. Med. 72: 636-638 (December) 1949.
7. Cecil, R. L.: A Textbook of Medicine, Ed 7, Philadelphia, W. B. Saunders Company, 1947, pp. 77-78.
8. Commission on Acute Respiratory Diseases: Epidemics of Q Fever Among Troops Returning from Italy in the Spring of 1945. III. Etiological Studies, Am. J. Hyg. 44: 103-109 (July) 1946.
9. Curnen, E. C.: Human Diseases Associated With The Coxsackie Viruses, Bull. New York Acad. Med. 26: 335-342 (May) 1950.
10. Curnen, E. C., Shaw, E. W., and Melnick, J. L.: Disease Resembling Non-Paralytic Poliomyelitis Associated With a Virus Pathogenic For Infant Mice, J.A.M.A. 141: 894-901 (November 26) 1949.
11. Dalldorf, G.: The Coxsackie Viruses, Bull. New York Acad. Med. 26: 329-335 (May) 1950.
12. Dalldorf, G.: The Coxsackie Group of Viruses, Science 110: 594 (December 2) 1949.
13. Dalldorf, G., and Sickles, G. M.: An Unidentified, Filterable Agent Isolated From the Feces of Children With Paralysis, Science 108: 61-62 (July 16) 1948.
14. Dalldorf, G., Sickles, G. M., Player, H., and Gifford, R.: A Virus Recovered From the Feces of "Poliomyelitis" Patients Pathogenic for Suckling Mice, J. Exper. Med. 89: 567-582 (June) 1949.
15. Denlinger, R. B.: Clinical Aspects of Q Fever in Southern California; A Study of 80 Hospitalized Cases, Ann. Int. Med. 30: 510-527 (March) 1949.
16. De Rodaniche, E. C., and De Rodaniche, A.: Studies on Q Fever in Panama, Am. J. Hyg. 49: 67-75 (January) 1949.
17. Dodd, K., Johnston, L. M., and Buddingh, G. J.: Herpetic Stomatitis, J. Ped. 12: 95-102 (January) 1938.
18. Dummer, C. M., Lyon, R. A., and Stevenson, F. E.: Benign Lymphocytic Meningitis (Aseptic Meningitis), J.A.M.A. 108: 633-636 (February 20) 1937.
19. Editorial: Coxsackie Viruses, Ann. Int. Med. 34: 257-263 (January) 1951.
20. Editorial: Epidemic Myalgia, or Pleurodynia, J.A.M.A. 102: 460-461 (February 10) 1934.
21. Feinstein, M., Yesner, R., and Marks, J. L.: Epidemics of Q Fever Among Troops Returning From Italy in The Spring of 1945. I. Clinical Aspects of The Epidemic at Camp Patrick Henry, Virginia. Am. J. Hyg. 44: 72-87 (July) 1946.
22. Gellis, S.: Pleurodynia in Nelson, W. E.: Textbook of Pediatrics, Ed 5, Philadelphia, W. B. Saunders Company, 1950, pp. 653.
23. Goodpasture, E. W.: Herpetic Infection, With Especial Reference to Involvement of The Nervous System, Medicine 8: 225-243 (May) 1929.
24. Gordon, B.: Diseases of Pléura in Piersol, GM M.: The Cyclopedia of Medicine, Surgery, Specialties, Ed 1, Philadelphia, F. A. Davis Company, 1951, pp. 776-778.
25. Harder, F. K.: Epidemic Myalgia or Pleurodynia in Southwestern Ohio, Am. J. M. Sc. 191: 678-685 (May) 1936.
26. Heubner, R. J., Armstrong, C., Beeman, E. A., and Cole, R. M.: Studies of Coxsackie Viruses, J.A.M.A. 144: 609-613 (October 21) 1950.
27. Heubner, R. J., Cole, R. M., Beeman, E. A., Bell, J. A., and Peers, J. H.: Herpangina, J.A.M.A. 145: 628-633 (March 3) 1951.
28. Heubner, R. J., Jellison, W. L., and Beck, M. D.: Q Fever —A Review of Current Knowledge, Ann. Int. Med. 30: 495-509 (March) 1949.
29. Howard, T., Weymuller, C. A., Edson, J., Ittner, E., Watson, J., and Cassidy, M. L.: Epidemic Pleurodynia in Brooklyn in the Summer of 1942, J.A.M.A. 121: 925-929 (March 20) 1943.
30. Humbert, W. C., Tucker, C. B., Mosely, K. T., and Bishop, L. K.: An Epidemic of an Acute Meningo-encephalitis in Giles County, Tennessee: An Unusual Disease, Am. J. Pub. Health 37: 564-569 (May) 1947.
31. Hyman, H. T.: An Integrated Practice of Medicine, Ed 1, Philadelphia, W. B. Saunders Company, 1946, pp. 403-406.
32. Jaworski, A. A., and West, E. J.: Aseptic Meningitis of New Virus Origin, J.A.M.A. 141: 902-904 (November 26) 1949.
33. Levine, H. D., Hoerr, S. O., and Allanson, J. C.: Vesicular Pharyngitis and Stomatitis, J.A.M.A. 112: 2020-2022.
34. Long, P. H.: Herpetic Pharyngitis and Stomatitis. A Report of Three Cases, J. Clin. Invest. 12: 1119-1125 (November) 1933.
35. MacDonald, R. R.: Epidemic Myalgia or Pleurodynia, Penn. M.J. 41: 919-920 (July) 1938.
36. MacDonald, R. R., Hewell, B., and Cooper, M. L.: Epidemic Myalgia or Pleurodynia. Clinical and Bacterological Studies, Am. J. Dis. Child. 53: 1424-1434 (June) 1937.
37. Melnick, J. L.: Studies On The Coxsackie Viruses. Properties, Immunological Aspects and Distribution in Nature, Bull. New York Acad. Med. 26: 342-356 (May) 1950.
38. Melnick, J. L., Ledinko, N., Kaplan, A. S., and Kraft, L. M.: Ohio Strains of A Virus Pathogenic for Infant Mice (Coxsackie Group.) Simultaneous Occurrence With Poliomyelitis Virus in Patients with "Summer Grippe," J. Exper. Med. 91: 185-195 (February) 1950.
39. Nichamin, S. J.: Clinical And Epidemiological Aspects of Epidemic Pleurodynia, J.A.M.A. 129: 600-605 (October 27) 1945.
40. Nichamin, S. J.: Pleurodynia in Children, J.A.M.A. 148: 1002-1004 (March 22) 1952.
41. Oliphant, J. W., Gordon, D. A., Meis, A., and Parker, R. R.: Q Fever In Laundry Workers, Presumably Transmitted From Contaminated Clothing, Am. J. Hyg. 49: 76-82 (January) 1949.
42. Parrott, R. H., Ross, S., Burke, F. G., and Rice, E. C.: Herpangina. Clinical Studies Of A Specific Infectious Disease, New England J. Med. 245: 275-280 (August 23) 1951.
43. Plattner, R. J.: Herpangina, J. Fed. 39: 635-637.
44. Quigley, J. J.: Ultrafiltration and Ultracentrifugation Studies of Coxsackie Virus, Proc. Soc. Exper. Biol. Med. 72: 434-435 (November) 1949.
45. Robbins, F. C., Gauld, R. L., and Warner, F. B.: Q Fever in The Mediterranean Area: Report of Its Occurrence in Allied Troops. II. Epidemiology, Am. J. Hyg. 44: 23-50 (July) 1946.
46. Robbins, F. C., and Ragan, C. A.: Q Fever In The Mediterranean Area: Report of Its Occurrence in Allied Troops. I. Clinical Features Of The Disease, Am. J. Hyg. 44: 6-23 (July) 1946.
47. Robbins, F. C., and Rustigan, R.: Q Fever In The Mediterranean Area: Report Of Its Occurrence In Allied Troops. IV. A Laboratory Outbreak, Am. J. Hyg. 44: 64-71 (July) 1946.
48. Robbins, F. C., Rustigan, F., Snyder, M. J., and Smodel, J. E.: Q Fever In The Mediterranean Area: Report Of Its Occurrence In Allied Troops. III. The Etiological Agent, Am. J. Hyg. 44: 51-63 (July) 1946.
49. Sabin, A. B., and Steigman, A. J.: Poliomyelitis Virus Of Low Virulence In Patients With Epidemic "Summer Grippe or Sore Throat," Am. J. Hyg. 49: 176-193 (March) 1949.
50. Scott, T. F. McN., and Steigman A. J.: Acute Infectious Gingivostomatitis, J.A.M.A. 117: 999-1005 (September 20) 1941.
51. Shaw, E. W., Melnick, J. L., and Curnen, E. C.: Infection Of Laboratory Workers With Coxsackie Viruses, Ann. Int. Med. 33: 32-40 (July) 1950.
52. Sickles, G. M., and Dalldorf, G.: Serologic Differences Among Strains Of The Coxsackie Group Of Viruses, Proc. Soc. Biol. Med. 72: 30-31 (October) 1949.
53. Silverthorne, N., Goodfellow, A. M., Anglin, C., Rhodes, A. J., Roy, T. E., and Snelling, C. E.: Non-Paralytic Poliomyelitis (Some Observations On Differential Diagnosis) Canad. M.A.J. 60: 356-359 (April) 1949.
54. Sluter, E. A., and Syverton, J. T.: The Cultivation of Coxsackie Virus, Proc. Soc. Exper. Biol. Med. 74: 509-510 (July) 1950.
55. Smandel, J. F.: The Practitioner And The Virus Diagnostic Laboratory, J.A.M.A. 136: 1079-1081 (April 24) 1948.



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56. Webb, C. H., and Wolfe, S. G.: "Three Day Fever" Am. J. Dis. Child. 80: 245-253 (August) 1950.
57. Webb, C. H., Wolfe, S. G., and Simpson, V.: Clinical Features of A Summer Disease (Three Day Fever) Apparently of Virus Etiology, New Orleans M & S J. 101: 249-255 (December) 1948.
58. Welborn, M. B.: Epidemic Pleurodynia (Devil's Grip) in Cincinnati, Am. J. M. Sc. 191: 673-678 (May) 1936.
59. Yater, W. M.: Fundamentals of Internal Medicine, Ed 3, New York, Appleton-Century-Crofts, Inc. 1949, p. 858.
60. Youmans, J. B.: Herpetic Fever With Stomatitis: Report And Discussion of A Case In Which the Virus Was Isolated, South. M.J. 25: 228-233 (March) 1932.
61. Zahorsky, J.: Herpangina, Arch. Ped. 41: 181-184 (March) 1924.
62. Zahorsky, J.: Herpetic Sore Throat, South. Med. J. 13: 871-872 (December) 1920.

A.M.A. Meeting

On June 13, 1952, the 101st annual convention of the American Medical Association, held in Chicago, came to a close. It was a very memorable occasion for several reasons, first, I think, because of the enormity of the affair, and the careful sectionization which permitted each doctor to single out what he preferred or needed most in his practice. The emphasis, of course, was constantly toward better care of those who are unfortunate enough to be ill. Navy Pier, which is an enormous building, was filled from end to end with scientific and commercial exhibits with about eight or nine rooms left for sectional meetings, television, and moving pictures. Despite the size of the meeting, things were conveniently arranged and the floor plan was certainly set up for general convenience. Some of the surgical sections and other specialties had to be held elsewhere for lack of room.

The House of Delegates met every day except Tuesday, which was devoted to reference committee hearings where all resolutions are worked over, and your delegates appeared before two. These proved most interesting and instructive. Occasionally a comment came from us which might have been helpful in crystalization of majority opinion. Surely the degree of intellectual approach which pervaded these hearings was indeed inspiring. This democratic method of getting facts, weighing evidence and arriving at an erudite and dignified conclusion, has proved superior in this realm, and I hope it will continue throughout my tenure of office as a delegate from Kansas. A quote here from the Washington Report on medical sciences seems apropos:

"It was decidedly an exciting convention, what with the Magnuson squabble and renewal of arguments over the wisdom of the Whitaker and Baxter campaign and warm electioneering for the office of president elect and many other divisions of opinion. It reaffirmed the role of organized medicine as a militant participant in national politics, and expressed anew its dissatisfaction with Mr. Truman, Mr. Ewing, and 'Socialized Medicine'."

The political reference was to House Resolution 7800, which has now passed the House with a revamped Section 3. The revamping was supposedly done to satisfy A.M.A. objections, but it failed to do so, because it is only another evidence of the Administration's and Mr. Ewing's effort to socialize medicine by hooking on a joker to an otherwise good bill. It would subject the entire aged and indigent care to complete bureaucratic domination. It was another flank attack which our Washington office was quick enough to catch. The bill has passed the House and is now to go to the Senate.

Care of non-service connected ills of veterans again came in for its share of discussion, and we believe an awareness of its evils may now be more apparent, even to the veterans' organizations themselves, so that we hope that changes for better screening may eventuate.

For the first time in the history of the American Medical Association House of Delegates, the American Osteopathic Association was brought into the forefront. There are desires, of course, on the part of osteopaths all over the United States to have full privilege of practicing medicine and surgery. The end result of the hearing before the committee and its actions was to the effect that if the American Osteopathic Association or any of its schools ask for help in the elevation of educational standards, that help would be given by medical men. The question of medical doctors teaching in such schools received favorable comment eventually, though that portion of the resolution was expunged.

Our participation actively in politics was recognized as an absolute necessity. Your delegates believe that the voluntary help in our present political campaign in Kansas as outlined by a special committee of individuals is most appropriate and that its importance cannot be overestimated. If we fail to achieve the best possible medical care for the people of Kansas, it will be because we fail as individual doctors to carry out the program.

Our parent organization is growing and taking an increasingly important place, not only in the scientific care of the sick and the art and practice of medicine, but also in the councils of many lay organizations, and this is as it should be. It was gratifying to see more Kansas doctors in attendance at the A.M.A. 101st convention than have attended since we have been delegates. It is to be hoped that all had a pleasant as well as an intellectually profitable experience.

In the field of entertainment, the Illinois State Medical Society, the Chicago Medical Society, and Armour and Company treated the delegates to a delightful dinner, preceded by cocktails and a two-hour vaudeville entertainment which was of the very highest quality. It was indeed a very fine gesture, highly appreciated by all who attended.

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1. *Perloff, Wm. H. (1951), Treatment of the Menopause. II. American J. Obst. & Gynec., 61:670, March.* 2. *Reich, W. J., et al. (1951), A Recent Advance in Estrogen Therapy. I. American J. Obst. & Gynec., 62:427, August.*

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Dr. Louis H. Bauer of Hempstead, New York, was installed at the inaugural ceremony which was broadcast and perhaps many of our members heard his inspiring and fiery address which was cordially received. Copies of this are available and are well worth the attention of everyone.

The interim session of the American Medical Association should be well attended by Kansas physicians because it will be held in Denver, Colorado, early next December. These carry a program always designed particularly for general practitioners, and I am sure it will be worth attending on the part of anyone and everyone in our society.

L. S. Nelson, M.D.
Delegate from Kansas

BOOK REVIEWS

Dynamic Psychiatry. Transvestism—Desire for Crippled Women. By Louis S. London. Published by Corinthian Publications, New York. 129 pages. Price $2.50.

The book itself is divided into three parts, the first part being anthropological and historical. Part two consists of 50 drawings made by the patient himself, and part three consists of an analysis of the case. The book is concise and interesting. It deals with two subjects that are relatively unusual to psychiatrists. Specifically, it deals with two subjects: (1) transvestism, which is a desire for a person to dress as a member of the opposite sex; and (2) a desire for crippled women.

The book points out that transvestism has existed in the literature from the time of Nero and is reported in the Greek and Mongol races of ancient history, as well as in many other races. The use of a physical difficulty or deformity serving as a fetish has been recorded in the literature of Krafft-Ebing and others. The author's patient gives a continued analysis and produces recollections from his fourth year of life when he wanted to be girl; and, shortly after that, he became fixated on his mother's shoes and on being a cripple.

The psychodynamics, as presented by the author, consisted of an unresolved Oedipus complex; the patient attempts to castrate himself and become a female; being unable to do this, he identified with a cripple and wanted to marry a cripple. Throughout the case is a considerable amount of homosexuality in that, when he masqueraded as a crippled woman, he wanted to be accosted by men. Other ailments present in this patient are exhibitionism, sadism, and masochism.

The main criticism of the case is that it tends to be somewhat sketchy and one has the feeling that he would like to know more of this child's relationships to his mother in regard to his early life and things that are not strictly sexual. With the exception of this minor criticism, the book is well written and is a worthwhile addition to the literature concerning sexual deviations.—*P.C.L.*

* * *

Textbook of Pharmacology. By William T. Salter. Published by W. B. Saunders Company, Philadelphia. 1240 pages, 284 figures. Price $15.

This newest addition to the textbook literature of pharmacology is a well-printed, nicely-bound volume, which on the whole is quite readable.

The book bears the earmarks of a work too hastily done and presents numerous drawbacks to its use as either a textbook for the medical student or as a reference for the general practitioner. Arrangement of subject matter is not such as to add clarity and too frequent referral from chapter to chapter is necessary for a complete discussion of many agents. In various portions the text not only lacks clarity but is actually confusing, especially so from the viewpoint of one encountering the subject for the first time. Frequent interjection of "extra matter" which either adds nothing concrete to the discussion at hand or is left "hanging in thin air" detracts from an otherwise interestingly written text. Actual errors of fact exist but are no more frequent than one might expect to find in a first edition. Tables and figures, which are numerous, lack originality and are frequently too involved to be good teaching aids; moreover, legends or explanations in the text are often woefully inadequate. Considerable pagination could have been saved in a book of this magnitude by a more careful attention to size and spacing of the various figures.

The reviewer cannot go along with some of the mental meanderings of the author, and, for example, has no sympathy for his relegation of present-day hypotheses of drug action to the limbo of mythology. This, at best, only clouds the real issues at hand, and gives the student a feeling of "superficiality" concerning the subject of pharmacology.

Considering the relatively high cost of this book, its various shortcomings and the other texts available on the subject, this work, in its present edition, cannot be recommended as a textbook for students or as a reference work for the general practitioner.—*R.E.G.*

Live birth in the United States last year soared above 3,800,000 for the second time in history, and topped the 1950 birth total by more than 200,000, according to a recent release from the Public Health Service. The annual birth rate for 1951, based on registered births alone, rose to 24.5 per thousand population, an increase of 4.3 per cent over 1950. The infant mortality rate dropped for the 15th straight year.

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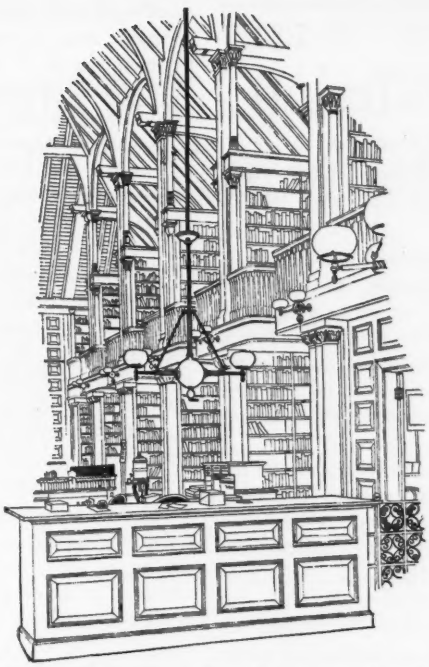

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ABSTRACTS FROM CURRENT LITERATURE

Bladder Neck Obstructions

Congenital Bladder Neck Obstructions. By Meredith F. Campbell, South. Med. Jnl., 41:2, 99-107, Feb., 1948.

Most bladder neck obstructions become manifest in early life but occasionally they are not presented for treatment until midlife or even at an elderly age. The authors report a 72-year-old man with obstructive uropathy from urethral valves in the prostatic urethra. The present report includes the author's personal study and treatment of 300 infants and children.

This survey includes congenital contracture of the vesical outlet, congenital valvular obstruction (of the prostatic urethra), deep urethral blockage by polyp, ureterocele, trigonal curtain, prostatic enlargement and neuromuscular vesicle disease.

Urinary secretion begins between the fifth and sixth month of fetal life so that the obstructive mechanical factors have been at work some weeks before the child is born. Total renal destruction has been noted at birth in newborn autopsy.

Nearly half of the author's cases were examined because they presented persistent enuresis. In 1500 children presenting persistent enuresis, one in eight presented residual urine. The remaining group presented persistent and recurring pyuria. Not infrequently cardiac hypertrophy and hypertension are found. The urinary bladder is invariably distented, sometimes extending above the umbilicus. Occasionally secondary urinary calculi are found.

Treatment of these uropathies is essentially as in adults by using miniature transurethral resectoscopic procedures. Not infrequently, suprapubic cystotomy or nephrostomy drainage must be done first because of the gravity of the situation. The maximal renal function and physiologic readjustment must be attained before corrective surgery.

Contraction of the vesical neck. This is usually a congenital submucous fibrosis with concentric narrowing of the vesical neck and a rather high median bar formation over the lower segment. This is similar to congenital stricture elsewhere. Congenital stenosis of the external urethral meatus often coexists.

Congenital valvular obstruction of the prostatic urethra. These valves are mucosal folds or redundancies which pass from the verumontanum posteriorly to the vesical outlet or anteriorly to the region of the membranous urethra or laterally to the urethral wall. In rare instances, the valve is an iris type diaphragm with only a small aperture. The diagnosis is readily made by endoscopic study at which time, by manipulation of the irrigating stream, the cusp-like nature of these structures is demonstrable. The valvular leaflets are removed by resection.

Congenital hypertrophy of the verumontanum. The veru is two to six times normal size. In minimal hypertrophy, a deep linear central coagulation is satisfactory when maximal transurethral resection is done which seals off the ejaculatory ducts. A polyp of the urethra is removed by resection.

Ureterocele is a congenital intravesical cyst of the lower end of the ureter, characterized by a pinhole ureteral orifice. It is sometimes very difficult to locate this minute ureteral orifice. They are usually bisected with scissors or electro cutting. Larger cysts may have to be removed by suprapubic incision and resection.

Occasionally, prostatic enlargements are found.

Neuromuscular vesicle disease is common in childhood and usually is not diagnosed. In these lesions, the nerve supply of the bladder and rectum is damaged or maldeveloped at its origin in the cord, possibly causing complete flaccid paralysis of vesical control. This condition may follow poliomyelitis, diphtheria, transverse or multiple myelitis, spinal cord injury at birth. It is usually the result of anomalous development of the spine and central nervous system, and may occur with spina bifida. When the bladder neck is sphincterospastic, transurethral resection affords a high percentage of cures and is the method of choice in treatment. Mecholyl is given to stimulate bladder contracture.—*D.R.D.*

Pamphlets on Heart Disease

A list of pamphlets distributed by the American Heart Association for use by both professional and lay persons was recently released to the *Journal* by the Kansas Heart Association.

Examination of the Heart is the title of the most popular booklet for physicians, and Cook Book for Low Sodium Diet has also been well received. Available also is a reprint, Recommendation for Human Blood Pressure Determinations by Sphygmomanometers.

Pamphlets designed for lay persons, recommended for use in the physician's reception room, bear such titles as What You Should Know About Rheumatic Fever, What the Teacher Should Know and Do about Children with Heart Disease, the Heart of the Home, Diseases of the Arteries, Challenge of Heart Disease, Know Your Heart, Employment and Heart Disease, High Blood Pressure, and Diseases of the Veins. The heart organization also recommends distribution of the pamphlets to women's clubs and other organizations interested in health problems.

MEAT... and the Cholesterol Content of the Diet

An essential constituent of human tissue, contributing to the normal functioning of all cells, cholesterol has been widely discussed as a factor in the etiology of atherosclerosis. Yet this lipid is required in many metabolic processes, and, furthermore, evidence is lacking that withholding cholesterol from the dietary is effective in preventing atherosclerosis.

In a recent plea for a return to the basic fundamentals of nutrition in the prophylaxis of atherosclerosis, it was emphasized that to eliminate cholesterol from the diet would mean to eliminate such animal foods as meat, milk, eggs, etc.* However, nutritionists are unanimous in asserting that these protective foods contain basic essential nutrients required for good nutrition and that to deny them would be "equivalent to the negation of practically all that nutrition science has taught us in the past."

According to these authors,* elimination of animal foods from the diet to prevent the development of atherosclerosis is unjustified on the basis of present day knowledge. They state that "there certainly is no evidence that meatless, milkless, and eggless diets should be recommended as desirable to the general public."

Meat, America's favorite protein food, always has been and continues to be an important dietary source of biologically complete protein, B vitamins, and iron. Few indeed are the conditions in which its use must be interdicted.

---

*Hegsted, D. M.; Mann, G. V., and Stare, F. J.: Comments on Cholesterol, Editorial, Postgrad. Med. *11*:454 (May) 1952.

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

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Single copies of the pamphlets are available without cost, and a nominal charge is made for quantity orders and for books. Films for professional use are available at a small rental fee.

Complete information on the material may be secured from the Kansas Heart Association, Masonic Temple Building, Topeka.

Fifty per cent of all pharmaceutical sales 10 years hence will be accounted for by medicines that are not known today, in the opinion of Dr. J. Mark Hiebert, executive vice president of Sterling Drug, Inc.

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In experimental mice with induced chronic tuberculosis, lesions remained stable over 6-12 weeks; when 0.5 mgm. Cortisone was given daily for a maximum of 15 injections, 8 of 11 died with large, necrotic, coalescing pulmonary lesions containing many organisms. Similarly infected mice not treated with Cortisone showed no fatalities in a similar period.

One must consider that Cortisone could similarly aggravate tuberculosis in the human.

Hart, P. D'Arcy, and Rees, R. J. W., Lancet 2: 391-395, Sept. 23, 1950.

Pathologically Speaking

CELL STUDY OF SECRETIONS

WHENEVER abnormal amounts or abnormal types of discharge are encountered, the possibility of malignancy must be included in the differential diagnosis, and whenever such discharges or secretions are so located as to be accessible to aspiration, either under direct vision or by puncture of a space and aspiration, the fluid removed should be measured, the specific gravity determined, gross color and turbidity noted, and then some of the centrifuged sediment should be used for cell study.

If fluid is to be mailed to the laboratory before centrifuging, formalin should be added in amounts of 1 c.c. of 10% formalin to every 10 c.c. of fluid (to preserve cellular outline). On the other hand, if the fluid is to be centrifuged and smeared before mailing, the sediment should be dropped onto one slide, another slide dropped over it, pressure exerted to spread evenly the material between the slides, and then place the slides immediately —while still wet—into a Coplin jar or a mailing bottle containing 95% alcohol, which fixes the material to the slide. Putting a paper clip over one end of each slide will serve to keep the slides separated from each other.

Such a procedure is now applicable to aspirated pleural or peritoneal fluid, exudates anywhere on the skin or mucous membrane surfaces, sputum specimens, centrifuged urine sediments, fasting gastric secretions, cervical and vaginal discharges and abnormal discharge from the breast.

It must be emphasized that whenever highly suspicious symptoms and signs exist, such as tumor, bleeding, pain, weight loss, etc., but the smear is negative for suspicious cells, the physician must pursue the diagnosis further with biopsy, exploration, or whatever other procedures are indicated. A negative smear should never be taken as final evidence of the absence of malignancy.

RALPH EMERSON DUNCAN, M. D.
LORAINE E. SCHULTZ, M. D.
ALBERT E. UPSHER, M. D.

ANNOUNCEMENTS

The Army Medical Service will conduct 17 short postgraduate courses in surgery, psychiatry and other specialties during the last six months of 1952, the Department of the Army announced recently. The instruction is open to both military and civilian physicians and will be presented at six large Army teaching hospitals and the Institute of Pathology in Washington. Complete information may be secured from the Department of the Army, Office of the Surgeon General, Technical Information Office, Washington 25, D. C.

* * *

The 80th annual meeting of the American Public Health Association and the annual meetings of 38 related organizations will be held in Cleveland, October 20-24.

* * *

The 38th annual clinical congress of the American College of Surgeons will be held at the Waldorf-Astoria in New York City, September 22 through September 26. Attendance is expected to reach 10,000. The program includes clinics, postgraduate courses, forums, panel discussions, color television, medical motion pictures and scientific and technical exhibits. Sixty-two hospitals will cooperate in presenting operative clinics and demonstrations, and there will be 12 sessions of a forum on fundamental surgical problems.

A complete program may be secured from the College, 40 East Erie Street, Chicago 11, Illinois.

* * *

The fourth annual meeting of the Southwestern Surgical Congress will be held October 20-22 at the Baker Hotel in Dallas. Six outstanding guest speakers will present the scientific program and will participate in round table discussions daily. Each afternoon session will include a one-hour panel discussion with three additional guests as moderators. There will also be a motion picture period each day. Complete information may be secured from the central office of the Congress, 1227 Classen, Oklahoma City 3, Oklahoma.

* * *

The American Board of Clinical Chemistry, Inc., has amended its by-laws to extend the period during which applications for certification will be reviewed from July 1, 1952 to December 31, 1952. Those who make application before the December date and are subsequently approved may be certified without examination. The application fee has been increased from $1.00 to $3.00. Application forms may be obtained from Joseph W. E. Harrisson, ScD., Secretary, American Board of Clinical Chemistry, Inc., 1921 Walnut Street, Philadelphia 3, Pennsylvania.

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To demonstrate how state and local health departments can help meet the health needs of older people, a hygiene of aging program is being established in the Public Health Service of the Federal Security Agency. The Division of Chronic Disease and Tuberculosis of the Bureau of State Services will operate the program.

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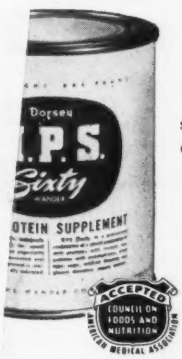

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*Frost, L. H., and Jackson, R. L.: J. Pediat., 39:585-592 (Nov.) 1951

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